

chain nodes :  
31 32 38 39

ring nodes :  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25  
26 27 28 29 30

chain bonds :  
20-31 23-32 26-32 29-31 38-39

ring bonds :  
1-2 1-6 2-3 2-28 3-4 3-30 4-5 5-6 5-25 6-27 7-8 7-12 8-9 9-10 10-11 11-12  
11-19 12-21 13-14 13-18 14-15 14-22 15-16 15-24 16-17 17-18 19-20 20-21 22-23  
23-24 25-26 26-27 28-29 29-30

exact/norm bonds :  
2-28 3-30 5-25 6-27 11-19 12-21 14-22 15-24 19-20 20-21 20-31 22-23 23-24  
23-32 25-26 26-27 26-32 28-29 29-30 29-31 38-39

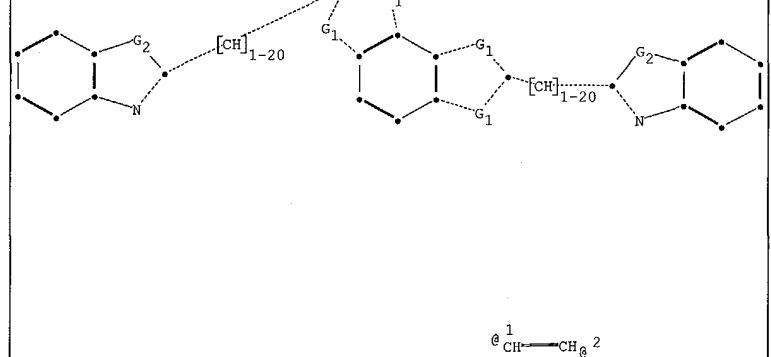
normalized bonds :  
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18 14-15  
15-16 16-17 17-18

G1:C,O,S,N,Se,Te,[\*1-\*2]

G2:C,O,S,CH2,[\*1-\*2]

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom  
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom  
22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:Atom 31:CLASS  
32:CLASS 38:CLASS 39:CLASS



**chain nodes :**  
 31 32 33 34  
**ring nodes :**  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25  
 26 27 28 29 30  
**chain bonds :**  
 8-32 11-31 26-31 29-32 33-34  
**ring bonds :**  
 1-2 1-6 2-3 3-4 3-10 4-5 4-12 5-6 5-7 6-9 7-8 8-9 10-11 11-12 11-13 13-14 13-18  
 14-15 15-16 16-17 17-18 17-25 18-27 19-20 19-24 20-21 20-28 21-22 21-30 22-23  
 23-24 25-26 26-27 28-29 29-30  
**exact/norm bonds :**  
 3-10 4-12 5-7 6-9 7-8 8-9 8-32 10-11 11-12 11-31 17-25 18-27 20-28 21-30  
 25-26 26-27 26-31 28-29 29-30 29-32 33-34  
**normalized bonds :**  
 1-2 1-6 2-3 3-4 4-5 5-6 13-14 13-18 14-15 15-16 16-17 17-18 19-20 19-24  
 20-21 21-22 22-23 23-24

**G1:C,O,S,N,Se,Te, [\*1-\*2]**  
**G2:C,O,S,CH2, [\*1-\*2]**

**Match level :**  
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom  
 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom  
 22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:Atom 31:CLASS  
 32:CLASS 33:CLASS 34:CLASS

=> d his

(FILE 'HOME' ENTERED AT 10:42:40 ON 23 SEP 2003)

FILE 'REGISTRY' ENTERED AT 10:44:17 ON 23 SEP 2003

L1           STRUCTURE UPLOADED  
L2           STRUCTURE UPLOADED  
L3           3 S L1  
L4           123 S L1 FULL  
L5           1 S L2  
L6           119 S L2 FULL

FILE 'CAPLUS' ENTERED AT 10:45:55 ON 23 SEP 2003

L7           65 S L4 OR L6

=> d que 17 stat

L1           STR

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

Structure attributes must be viewed using STN Express query preparation.

L2           STR

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

Structure attributes must be viewed using STN Express query preparation.

L4           123 SEA FILE=REGISTRY SSS FUL L1  
L6           119 SEA FILE=REGISTRY SSS FUL L2  
L7           65 SEA FILE=CAPLUS ABB=ON PLU=ON L4 OR L6

=> d 1-65 ibib iabs hitstr

L7 ANSWER 1 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 2002-676106 CAPLUS

DOCUMENT NUMBER: 137:202633  
TITLE: Fluorescent cyanine dyes and their use in labeling of biomolecules  
INVENTOR(S): Braman, Jeffrey Carl; Anderson, Jack  
PATENT ASSIGNEE(S): Stratagene, USA  
SOURCE: PCT Int. App. 56 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002068537	A2	20020906	WO 2002-U56225	20020228

W: AU, CA, JP  
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,  
PT, SE, TR

US 2003088109 A1 20030508 US 2002-87072 20020228

PRIORITY APPLN. INFO.: US 2001-272131P P 20010228

OTHER SOURCE(S): MARPAT 137:202633

ABSTRACT:  
The invention relates to fluorescent cyanine dyes, and esp. to water-sol. fluorescent cyanine dyes that contain addnl. sites for attachment to biomol. They have distinct fluorescence characteristics that permit their use in any assay or method suited to water-sol. fluorescent dyes, and esp. to assays requiring a plurality of distinguishable fluorescent markers. In an example, 2,6-dimethylbenzo[1,2,5,4]bisthiazolium was methylated with Me2SO4 and the product was treated with 2-(2-anilinovinyl)-1-(5-carboxypentyl)-3,3-dimethylindolinium bromide to give a fluorescent dye. Oligonucleotide probe labeling was illustrated.

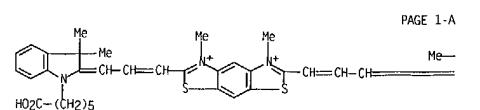
IT 454485-02-0P 454485-06-4  
RL: BUN (Biological use, unclassified); IMF (Industrial manufacture); TEM (Technical or engineered material use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(dye; prodn. of fluorescent cyanine dyes for biomol. labels)

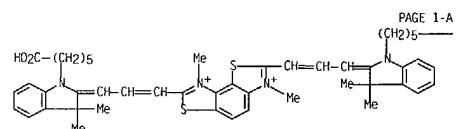
RN 454485-02-0 CAPLUS

CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-[1-(5-carboxypentyl)-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene]-1-propenyl]-3,5-dimethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 1 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 454485-06-4 CAPLUS  
CN Benzo[1,2-d:3,4-d']bisthiazolium, 2,7-bis[3-[1-(5-carboxypentyl)-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene]-1-propenyl]-3,8-dimethyl- (9CI) (CA INDEX NAME)



PAGE 1-B

-CO2H

L7 ANSWER 2 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 2002-242416 CAPLUS

DOCUMENT NUMBER: 137:54471  
TITLE: Photophysics of symmetric biscyanines and their aggregation in solutions  
AUTHOR(S): Yuzhakov, V. I.; Blinova, K. G.; Ishchenko, A. A.; Levshin, L. V.; Patsaeva, S. V.; Pekhova, A. V.  
CORPORATE SOURCE: Mosk. Gos. Univ. im. M. V. Lomonosova. Moscow, Russia  
SOURCE: Optika Atmosfery i Okeana (2001), 14(11), 1041-1045  
CODEN: OAOKEM; ISSN: 0869-5695  
PUBLISHER: Institut Optiki Atmosfery  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
ABSTRACT:  
Photophys. processes and mol. aggregation of polymethine dyes was studied in ethanol solns. and in poly(vinyl alc.) matrixes. Interaction energy of chromophores, and dipole transition moments of biscyanines are calcd. Fluorescence lifetime and quantum yield of intersystem crossing were obtained using nonlinear fluorometry. Hypsochromic shift of the fluorescence max. of biscyanine dyes in laser exposed polymer films is explained by nonuniform broadening of the dye electronic energy levels.

IT 19695-86-4 19695-88-6 391469-01-5

391469-08-2

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
(photophys. processes and mol. aggregation of sym. biscyanines in ethanol solns. and in poly(vinyl alc.) matrixes)

RN 19695-86-4 CAPLUS

CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

L7 ANSWER 2 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

CN 21228-90-0

CMF C 13 04 S

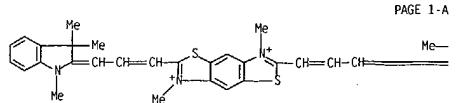
Me-O-SO3-

RN 19695-88-6 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CN 21839-56-5

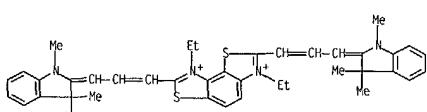
CMF C 38 H 40 N 4 S 2



CN 23104-60-1  
CMF C 38 H 40 N 4 S 2

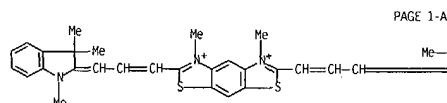
PAGE 1-A

L7 ANSWER 2 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 2  
CRN 21228-90-0  
CMF C H3 O4 SMe-O-SO<sub>3</sub><sup>-</sup>RN 391469-01-5 CAPLUS  
CN Benzo[1,2-d:3,4-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-diethyl-, dipерchlorate (9CI) (CA INDEX NAME)CM 1  
CRN 391469-00-4  
CMF C40 H44 N4 S2CM 2  
CRN 14797-73-0  
CMF C1 O4RN 391469-08-2 CAPLUS  
CN Benzo[1,2-d:4,3-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

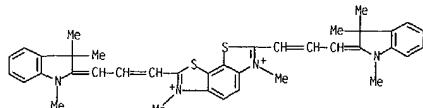
L7 ANSWER 3 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 2001-437118 CAPLUS  
DOCUMENT NUMBER: 136:19848  
TITLE: Spectroscopic investigation of biscyanine dyes aggregation in solutions  
AUTHOR(S): Blinova, K. G.; Ishchenko, A. A.; Mushkalo, T. L.; Papayeva, S. V.; Pekhota, A. V.; Yuzhakov, V. I.  
CORPORATE SOURCE: Kafedra Osnicheskoi Fiz., Mosk. Gos. Univ. im. M. V. Lomonosova, Moscow, Russia  
SOURCE: Vestnik Moskovskogo Universiteta. Seriya 3: Fizika, Astronomiya (2001). (2), 34-38  
PUBLISHER: Izdatel'stvo Moskovskogo Universiteta  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
ABSTRACT: Absorption and luminescence spectra are recorded for aq. and ethanol solns. of four biscyanine dyes existing in the form of chem. bound dimers.

IT 19695-86-4 19695-88-6 391469-01-5  
391469-08-2  
RL: (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
(spectroscopic investigation of biscyanine dyes aggregation in solns.)  
RN 19695-86-4 CAPLUS  
CN Benzo[1,2-d:4,3-d']bis[thiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1  
CRN 23104-60-1  
CMF C38 H40 N4 S2

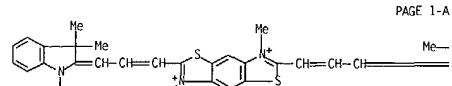
PAGE 1-A

L7 ANSWER 2 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 1  
CRN 21834-79-7  
CMF C38 H40 N4 S2CM 2  
CRN 21228-90-0  
CMF C H3 O4 SMe-O-SO<sub>3</sub><sup>-</sup>Me-O-SO<sub>3</sub><sup>-</sup>

L7 ANSWER 3 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B

CM 2  
CRN 21228-90-0  
CMF C H3 O4 SMe-O-SO<sub>3</sub><sup>-</sup>RN 19695-88-6 CAPLUS  
CN Benzo[1,2-d:4,5-d']bis[thiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)
CM 1  
CRN 21839-56-5  
CMF C38 H40 N4 S2

PAGE 1-A



PAGE 1-B

L7 ANSWER 3 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
CM 2

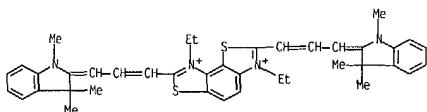
CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO<sub>3</sub><sup>-</sup>

RN 391469-01-5 CAPLUS  
CN Benzo[1,2-d:3,4-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-diethyl-, dipерchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 391469-00-4  
CMF C40 H44 N4 S2



CM 2

CRN 14797-73-0  
CMF C1 O4

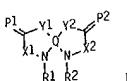


RN 391469-08-2 CAPLUS  
CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

L7 ANSWER 4 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 2000-227424 CAPLUS  
DOCUMENT NUMBER: 132:271740  
TITLE: Semiconductor particles sensitized with methine dye  
INVENTOR(S): Watanabe, Tetsuya  
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd.. Japan  
SOURCE: Eur. Pat. Appl., 42 pp.  
CODEN: EPXXDN  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 991092	A2	20000405	EP 1999-119368	19990929
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000103978	A2	20000411	JP 1998-278022	19980930
JP 2000195570	A2	20000714	JP 1998-367616	19981224
US 6335481	B1	20020101	US 1999-407942	19990929
PRIORITY APPLN. INFO.:				
			JP 1998-278022 A	19980930
			JP 1998-367616 A	19981224

GRAPHIC IMAGE:

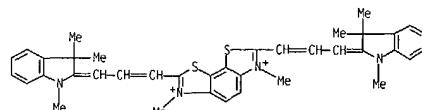


**ABSTRACT:**  
Semiconductor particles used in a photoelec. devices are sensitized by an adsorbed methine dye represented by the formula I wherein Q is a tetravalent arom. group; each of X1 and X2 independently is a single bond or -CR3-CR4-; when X1 is a single bond, Y1 is -O-, -S-, -Se-, -NR5-, -CR6R7-, or -CR8-CR9-; when X1 is -CR3-CR4-, Y1 is a single bond; when X2 is a single bond, Y2 is -O-, -S-, -Se-, -NR5-, -CR6R7-, or -CR8-CR9-; when X2 is -CR3-CR4-, Y2 is a single bond; each of R1 and R2 independently is an aliph. group or an arom. group; each of R3-9 independently is H or an alkyl group; each of P1 and P2 independently is =L1O, =L2-Ak, or =L3-Ar; each of L1 and L3 is a methine chain having an odd no. of methine groups; L2 is a methine chain having an even no. of methine groups; B0 is an onium form of a basic nucleus; Ak is an acidic nucleus of a keto type; Ar is an arom. nucleus.

IT 263359-71-3  
RL: NNU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
(photoelec. devices contg. semiconductor particles photosensitized by)

L7 ANSWER 3 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
CM 1

CRN 21034-79-7  
CMF C38 H40 N4 S2



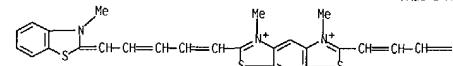
CM 2

CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO<sub>3</sub><sup>-</sup>

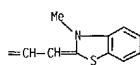
L7 ANSWER 4 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
RN 263359-71-3 CAPLUS  
CN Benzo[1,2-d:5,4-d']bisthiazolium, 3,5-dimethyl-2,6-bis[5-(3-methyl-2(3H)-benzothiazolylidene)-1,3-pentadienyl]-, diiodide (9CI) (CA INDEX NAME)

PAGE 1-A



●2 I-

PAGE 1-B



L7 ANSWER 5 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1999:475129 CAPLUS  
 DOCUMENT NUMBER: 131:23563  
 TITLE: Influence of the interaction of chromophores of bis-cyanine dyes on the photogeneration of charge carriers in poly(N-epoxypropylcarbazole) films  
 AUTHOR(S): Davidenko, N. A.; Ishchenko, A. A.; Mushkalo, I. L.; Pavlov, V. A.  
 CORPORATE SOURCE: Taras Shevchenko Kiev National University, Kiev, 252033, Ukraine  
 SOURCE: Theoretical and Experimental Chemistry (Translation of Teoreticheskaya i Eksperimental'naya Khimiya) (1999), Volume Date 1998, 34(6), 343-347  
 PUBLISHER: Consultants Bureau  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ABSTRACT: An increase in photocond. and in the extinguishing effect of an external electric field has been obstd. in the photoluminescence of doped poly(N-epoxypropylcarbazole) films during changing from monocyanine dyes to the corresponding bis-cyanines. It was concluded that an increase of photogeneration of triplet electron-hole pairs occurs with such replacement of the dye and that dissociation of the pairs was responsible for the photocond.

IT 19695-88-6  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (photosensitizer; photogeneration of charge carriers in cyanine dye-doped poly(N-epoxypropylcarbazole) films)

RN 19695-88-6 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bis[thiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 21839-56-5  
 CMF C38 H40 N4 S2

L7 ANSWER 5 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B

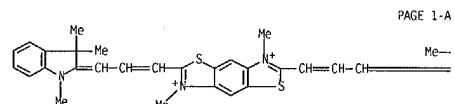


CM 2

CRN 21228-90-0  
 CMF C13 H14 O4 S

Me-O-SO3-

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



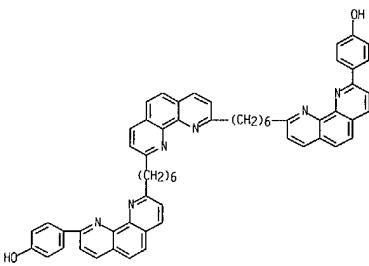
L7 ANSWER 6 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1996:465900 CAPLUS  
 DOCUMENT NUMBER: 125:247779  
 TITLE: Copper(I) template synthesis of a 4-crossing [2]-catenane  
 AUTHOR(S): Nierengarten, Jean-Francois; Dietrich-Buchecker, Christiane O.; Sauvage, Jean-Pierre  
 CORPORATE SOURCE: Lab. Chim.-Miner., Univ. Louis-Pasteur, Strasbourg, 67070, Fr.  
 SOURCE: New Journal of Chemistry (1996), 20(6), 685-693  
 PUBLISHER: Gauthier-Villars  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ABSTRACT: The first synthesis of a 4-crossing [2]-catenane via a copper(I) template approach is described. Its topol. isomer, the singly interlocked [2]-catenane, was also prep. The synthesis of both [2]-catenanes greatly facilitated their structural identification. The comparison of their NMR and mass spectra allowed unambiguous assignment of their topol.

IT 153399-54-3DP, copper complexes 153399-54-3P  
 164934-62-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (copper(I) template synthesis of a 4-crossing [2]-catenane)

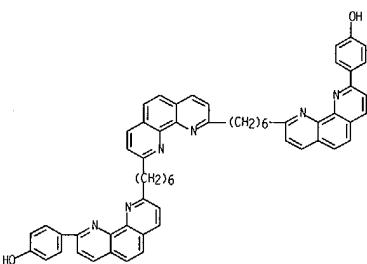
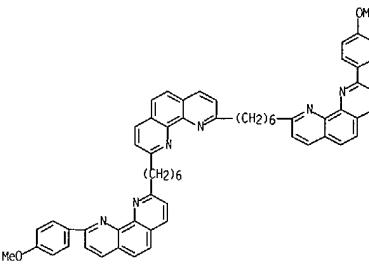
RN 153399-54-3 CAPLUS

CN Phenol, 4,4'-(1,10-phenanthroline-2,9-diyl)bis(6,1-hexanediy1)-1,10-phenanthroline-9,2-diyl) (9CI) (CA INDEX NAME)

L7 ANSWER 6 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 phenanthroline-9,2-diyl)bis- (9CI) (CA INDEX NAME)



RN 164934-62-7 CAPLUS  
 CN 1,10-Phenanthroline, 2,9-bis[6-[9-(4-methoxyphenyl)-1,10-phenanthroline-2,9-y1]hexyl]- (9CI) (CA INDEX NAME)



RN 153399-54-3 CAPLUS  
 CN Phenol, 4,4'-(1,10-phenanthroline-2,9-diyl)bis(6,1-hexanediy1)-1,10-

L7 ANSWER 7 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1995:604813 CAPLUS

DOCUMENT NUMBER: 123:73385

TITLE: Transition-metal-directed threading of molecular strings into coordinating rings: synthetic aspects and kinetic study of the dethreading process

AUTHOR(S): Chambron, Jean-Claude; Dietrich-Buchecker, Christiane; Nierengarten, Jean-Francois; Sauvage, Jean-Pierre; Solladie, Nathalie; Albrecht-Gary, Anne-Marie; Meyer, Michel

CORPORATE SOURCE: Lab. Chimie Organo-Minérale, Faculté Chimie, Strasbourg, 67000, Fr.

SOURCE: New Journal of Chemistry (1995), 19(4), 409-26

CODEN: NJCHE5; ISSN: 1144-0546

PUBLISHER: Gauthier-Villars

DOCUMENT TYPE: Journal

LANGUAGE: English

GRAPHIC IMAGE:

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

**ABSTRACT:** Cu(I) was used as a template species to thread a mol. string contg. one, two or three chelating phenanthroline units into a coordinating macrocycle (I)(m30). Whereas any of the bis-phenanthroline mol. strings (I1; Y = Me, Z = p-C6H4COMe; Y = OMe, Z = p-C6H4O-p-C6H4, (CH2)4) (T1, T2 and T3) can be threaded into two macrocycles, the case of the tris-phenanthroline chelate III (T4) is less simple. Two of the neighboring three binding sites complex one Cu<sup>+</sup> ion intramolecularly and the 3rd phenanthroline pendant coordination site is available for Cu<sup>+</sup>-directed threading of the macrocycle m-30. This particular behavior is probably related to the nature of the bridge linking the phenanthroline chelates -(CH2)6-. Dethreading expts. were run using the cyanide anion as a decomplexing reagent. In all cases, dissociation takes place via two-step mechanisms. In the case of the bis-phenanthroline threads, the rates depend on the nature of the bridges linking the phenanthroline chelates. For Cu2[T1(m-30)2]2+ and Cu2[T2(m-30)2]2+ (rigid arom. bridges), the rate consts. are approx. 10 M-1 s-1 for the faster step and approx. 2.5 M-1 s-1 for the slower step. For Cu2[T3(m-30)2]2+ -(CH2)4-, the rate consts. are much higher: 1120 and 354 M-1 s-1, resp. Finally, when the tris-phenanthroline-contg. thread is involved (the case of Cu2[T4(m-30)1]2+), the rate consts. are 1790 and 324 M-1 s-1 for the faster and slower steps, resp. In the latter case, the fast process probably corresponds to an unfolding of the thread with demetalation of the 1st Cu site, whereas the slower step is a real dethreading reaction, analogous to the 2nd dissociation step of the other dicopper(I) complexes.

L7 ANSWER 8 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1994:164144 CAPLUS

DOCUMENT NUMBER: 120:164144

TITLE: Synthesis of a doubly interlocked [2]-catenane

AUTHOR(S): Nierengarten, Jean Francois; Dietrich-Buchecker, Christiane O.; Sauvage, Jean Pierre

CORPORATE SOURCE: Inst. Chim. Univ. Louis Pasteur, Strasbourg, 67000, Fr.

SOURCE: Journal of the American Chemical Society (1994), 116(11), 375-6

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

ABSTRACT:

A four-crossing [2]-catenane has been prepd. for the first time. The synthesis principle is based on the three-dimensional template effect of copper(I). In a first step, an intermediate contg. a double-stranded trimetallic helicoidal complex was generated. The cyclization step afforded the doubly interlocked [2]-catenane which led to the free ligand after demetalation. The more classical two-crossing catenane could also be isolated and compared to its doubly interlocked topol. stereoisomer. Both catenanes were characterized by <sup>1</sup>H NMR and mass spectrometry (ES-MS and FAB-MS).

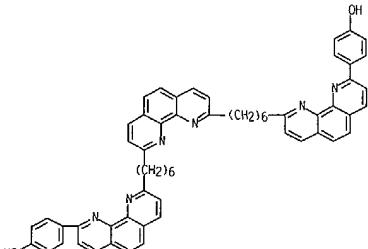
IT 153399-54-3

RL: RCT (Reactant); RACT (Reactant or reagent)

(reactant, in prepn. of doubly interlocked [2]-catenane)

RN 153399-54-3 CAPLUS

CN Phenol, 4,4'-(1,10-phenanthroline-2,9-diy)bis(6,1-hexanediyl)-1,10-phenanthroline-9,2-diy)bis-(9CI) (CA INDEX NAME)



L7 ANSWER 7 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

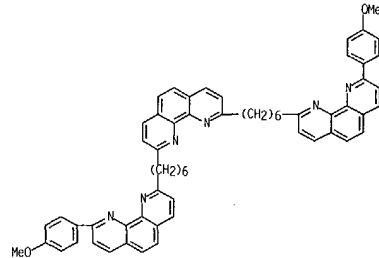
IT 164934-62-7

RL: RCT (Reactant); RACT (Reactant or reagent)

(for prepn. of copper macrocycle complexes with phenanthroline-contg. mol. strings)

RN 164934-62-7 CAPLUS

CN 1,10-Phenanthroline, 2,9-bis[6-[9-(4-methoxyphenyl)-1,10-phenanthroline-2-yl]hexyl]- (9CI) (CA INDEX NAME)



L7 ANSWER 9 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:482206 CAPLUS

DOCUMENT NUMBER: 115:82206

TITLE: Electrophotographic photoreceptor using indoline compound as charge-transporting agent

AUTHOR(S): Mishima, Masayuki; Yamazaki, Harumasa; Matsuse, Takashi; Sakuma, Tadashi; Togashi, Hiroyasu

PATENT ASSIGNEE(S): Kao Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

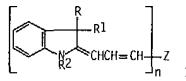
PATENT NO. KIND DATE APPLICATION NO. DATE

JP 0228538 A2 19901122 JP 1989-107020 19890426

PRIORITY APPLN. INFO.: JP 1989-107020 19890426

OTHER SOURCE(S): MARPAT 115:82206

GRAPHIC SOURCE:



ABSTRACT:

The title photoreceptor comprises an elec. conductive support, a charge-generating layer, and a charge-transporting layer contg. a indoline compd. I [R, R1, R2 = (branched) alkyl which may be substituted, (substituted) aryl, Z = (substituted) arom. hydrocarbon, heterocycle, n = 2, 3]. A photoreceptor using chi-type metal-free phthalocyanine and I (R = R1 = Me, R2 = Ph, Z = p-phenylene, n = 2) showed good photosensitivity and durability in repeated use.

IT 134560-20-6

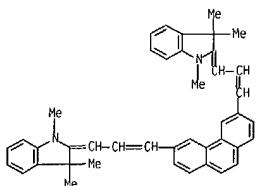
RL: USES (Uses)

(charge-transporting agent, electrophotog. photoreceptor contg.)

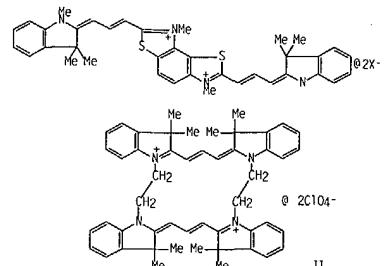
RN 134560-20-6 CAPLUS

CN 1H-Indole, 2,2'-(3,6-phenanthrenediyl)-2-propen-3-yl-1-ylidene)bis[2,3-dihydro-1,3,3-trimethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 9 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



L7 ANSWER 10 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1989:459538 CAPLUS  
 DOCUMENT NUMBER: 111:69538  
 TITLE: Association of biscyanine dyes with rigidly connected chromophores in solvents of different polarity  
 AUTHOR(S): Ishchenko, A. A.; Mushkalo, I. L.; Derevyanko, N. A.; Zakhidov, U.; Khidirova, T. Sh.; Nizamov, N.  
 CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
 SOURCE: Journal of Information Recording Materials (1989). 17(1), 39-51  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE:



ABSTRACT:  
 In polar solvents, assocn. of the cationic biscyanine dyes I ( $X = ClO_4$ ,  $Br^-$ ) with angular situation of the chromophores occurred more readily than that of monocyanine dye analogs. Assocn. of biscyanine dye II with parallel situation of the chromophores was similar to that of a monocyanine analog. Assocn. in such solvents occurred only at high concns. (10-3-10-3M). Similar behavior was obstd. in water, but in more dil. solns. Addn. of Na dodecyl sulfate surfactant to aq. solns. led to deaggregation of the biscyanines. In weakly polar solvents and their binary mixts., the biscyanines assocn. more readily than the monocyanines, regardless of the angle of chromophore situation. Aggregation in such solvents depended on the anion nature, occurred in very dil. solns. (10-5-10-6M), and was the result of both dispersion

L7 ANSWER 10 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 interactions of the  $\pi$ -systems of the cations and electrostatic interaction between charges of the ion pairs. The presence of 2 anions in the biscyanines increased the probability of assocn. of their ion pairs in comparison with that of the monocyanines.

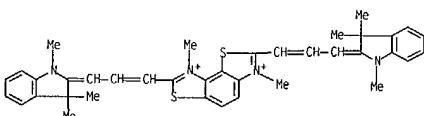
IT 121717-44-0 121717-45-1

RL: PRP (Properties)  
 (assocn. of, in solvents, structure and solvent polarity in relation to)

RN 121717-44-0 CAPLUS

CN Benzo[1,2-d:3,4-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

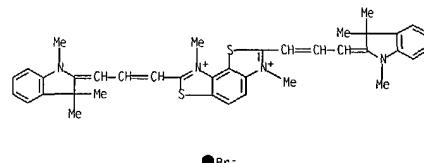
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CM 2

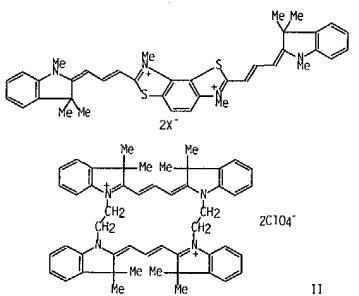
CRN 14797-73-0  
 CMF C1 O4

RN 121717-45-1 CAPLUS  
 CN Benzo[1,2-d:3,4-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl-, bromide (9CI) (CA INDEX NAME)

L7 ANSWER 10 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

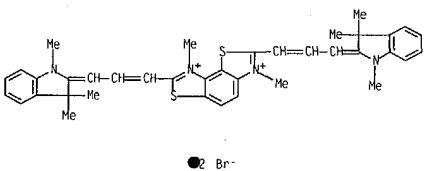


L7 ANSWER 11 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1989-441346 CAPLUS  
 DOCUMENT NUMBER: 111-41346  
 TITLE: Association of biscyanine dyes with rigidly bound chromophores in polar solvents  
 AUTHOR(S): Ishchenko, A. A.; Mushkalo, I. L.; Derevyanko, N. A.; Zakhidov, U.; Khidirova, T. Sh.; Nizamov, N.  
 CORPORATE SOURCE: USSR  
 SOURCE: Zhurnal Prikladnoi Spektroskopii (1989), 50(2), 237-43  
 CODEN: ZPSBAX; ISSN: 0514-7506  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE:



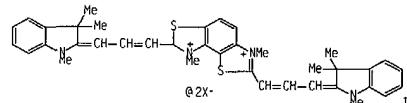
**ABSTRACT:**  
 The biscyanine dyes I ( $X = \text{Br, ClO}_4$ ), in which the chromophores had angular orientation, assoccd. in a polar solvent more easily than their monochromophoric analogs. The biscyanine dye II, in which the chromophores were situated parallel to each other, was similar to a monocyanine analog in that no aggregation was obsd. for the dyes in polar soln. Aggregation of the bis- and monocyanine dyes was independent of anion nature and was detd. by dispersive interactions of the  $\pi$ -system of their cations.

L7 ANSWER 11 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



**ABSTRACT:**  
 Absorption spectra for the biscyanines I ( $X = \text{Br, ClO}_4$ ) in dichloroethane-hexane solvent changed with increasing content of nonpolar solvent in the solvent mixt. due to assocn. of I mols. Significant changes were obsd. at 60 and 70% hexane. The dependence of the spectra on the anion nature indicated that both anions participated in assocn. of the ion pairs. This behavior was related to the greater tendency of cyanine dyes with 2 chromophores toward aggregation in weakly polar media, compared with analogous dyes with 1 chromophore.

L7 ANSWER 12 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1989-424946 CAPLUS  
 DOCUMENT NUMBER: 111-24946  
 TITLE: Association of biscyanines in low-polarity binary solvents  
 AUTHOR(S): Nizamov, N.; Khidirova, T. Sh.; Zakhidov, U.; Mushkalo, I. L.; Ishchenko, A.  
 CORPORATE SOURCE: Samark. Gos. Univ., Samarkand, USSR  
 SOURCE: Doklady Akademii Nauk UzSSR (1988), (9), 49-51  
 CODEN: DANIAO; ISSN: 0134-4307  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE:

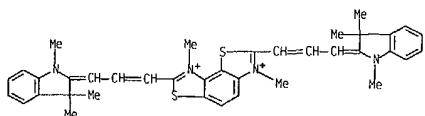


**ABSTRACT:**  
 Absorption spectra for the biscyanines I ( $X = \text{Br, ClO}_4$ ) in dichloroethane-hexane solvent changed with increasing content of nonpolar solvent in the solvent mixt. due to assocn. of I mols. Significant changes were obsd. at 60 and 70% hexane. The dependence of the spectra on the anion nature indicated that both anions participated in assocn. of the ion pairs. This behavior was related to the greater tendency of cyanine dyes with 2 chromophores toward aggregation in weakly polar media, compared with analogous dyes with 1 chromophore.

L7 ANSWER 12 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1989-424946 CAPLUS  
 DOCUMENT NUMBER: 111-24946  
 TITLE: Association of biscyanines in low-polarity binary solvents  
 AUTHOR(S): Nizamov, N.; Khidirova, T. Sh.; Zakhidov, U.; Mushkalo, I. L.; Ishchenko, A.  
 CORPORATE SOURCE: Samark. Gos. Univ., Samarkand, USSR  
 SOURCE: Doklady Akademii Nauk UzSSR (1988), (9), 49-51  
 CODEN: DANIAO; ISSN: 0134-4307  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE:

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 CRN 23792-51-0  
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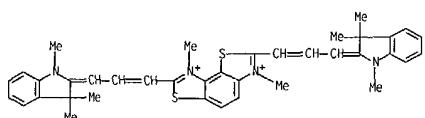
L7 ANSWER 12 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



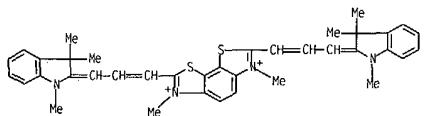
CM 2

CRN 14797-73-0  
CMF C1 04

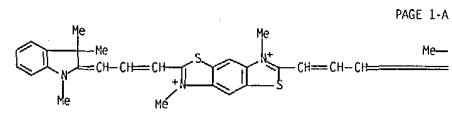
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CN Benzo[1,2-d:3,4-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl]-, dibromide (9CI) (CA INDEX NAME)

●2 Br<sup>-</sup>

L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



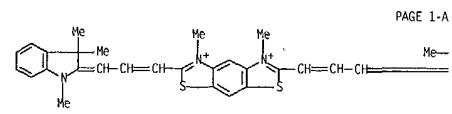
RN 21839-56-5 CAPLUS  
CN Benzo[1,2-d:4,5-d']bis[thiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl]- (9CI) (CA INDEX NAME)



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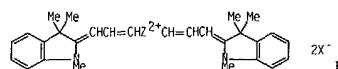
RN 23104-60-1 CAPLUS  
CN Benzo[1,2-d:5,4-d']bis[thiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl]- (9CI) (CA INDEX NAME)



PAGE 1-A

L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1987-408896 CAPLUS  
DOCUMENT NUMBER: 107-8896  
TITLE: Calculation of the conformational equilibrium of  
biscarbocyanines from their absorption spectra  
AUTHOR(S): Dyadusha, G. G.; Kachkovskii, A. D.; Kolesnikov, A.  
M.; Kucherov, A. P.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Teoreticheskaya i Eksperimental'naya Khimiya (1986),  
22(4), 426-35  
CODEN: TEKH44; ISSN: 0497-2627  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE:



ABSTRACT:  
A method based on the general regularities of interaction of 2 chromophores in  
a single mol. is presented for calcg. the ratio of conformers of  
biscarbocyanine dyes (1, 2 = diaryl heterocyclic nucleus; X = anion) from  
their absorption spectra. The probability of a polymethine chain being in 1 or  
another conformation can be detd. from the absorption spectra of the  
biscarbocyanine and its analog with fixed structure and from construction of  
graphic models of the proposed conformers. Factors detg. the conformational  
equil. are the apparent vols. of atoms or atom groups in positions 1 and 3 of  
the terminal heterocyclic ring.

IT 21834-79-2 21839-56-5 23104-60-1  
23792-51-0 37005-92-8 41075-55-2  
47853-12-3 79701-62-5 108527-67-9  
108527-68-0 108527-69-1 108527-70-4  
108527-71-5 108527-72-6 108527-73-7  
108527-74-8 108527-75-9 108527-76-0  
108527-77-1 108527-78-2 108527-79-3  
108544-29-2

RL: PRP (Properties)  
(conformer probability and conformational equil. of, calcn. of, from  
absorption spectra)

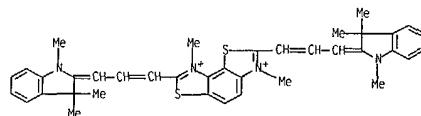
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L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

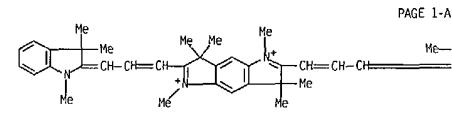
PAGE 1-B



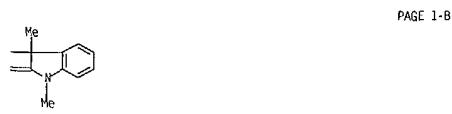
RN 23792-51-0 CAPLUS  
CN Benzo[1,2-d:3,4-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl]- (9CI) (CA INDEX NAME)



RN 37005-92-8 CAPLUS  
CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl- (9CI) (CA INDEX NAME)



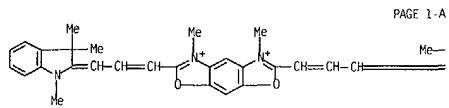
PAGE 1-A



PAGE 1-B

RN 41075-55-2 CAPLUS  
CN Benzo[1,2-d:5,4-d']bisoxazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-

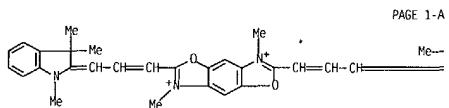
L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
indol-2-ylidene)-1-propenyl]-3,5-dimethyl- (9CI) (CA INDEX NAME)



PAGE 1-B



RN 47853-12-3 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl- (9CI) (CA INDEX NAME)



PAGE 1-B

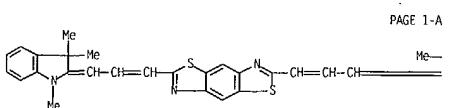


RN 79701-62-5 CAPLUS

L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 108527-69-1 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-, conjugate diacid (9CI) (CA INDEX NAME)

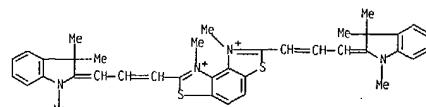
●2 H<sup>+</sup>

PAGE 1-B

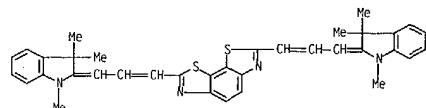


RN 108527-70-4 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-methyl-, conjugate monoacid (9CI) (CA INDEX NAME)

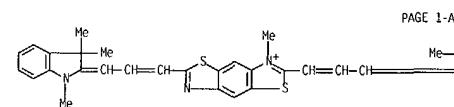
L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
Benzo[1,2-d:4,5-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-1,8-dimethyl- (9CI) (CA INDEX NAME)



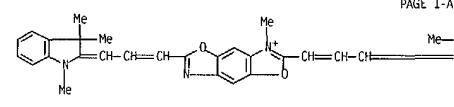
RN 108527-67-9 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazole, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-, conjugate diacid (9CI) (CA INDEX NAME)

●2 H<sup>+</sup>

RN 108527-68-0 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-methyl-, conjugate monoacid (9CI) (CA INDEX NAME)

●H<sup>+</sup>

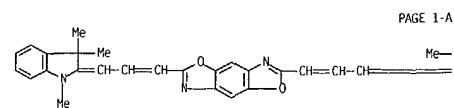
L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

●H<sup>+</sup>

PAGE 1-B



RN 108527-71-5 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-, conjugate diacid (9CI) (CA INDEX NAME)

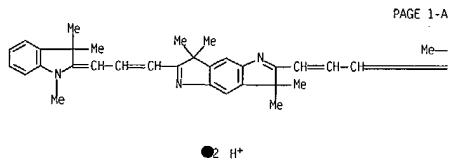
●2 H<sup>+</sup>

PAGE 1-B

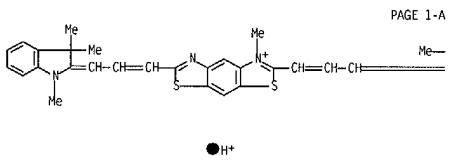


RN 108527-72-6 CAPLUS

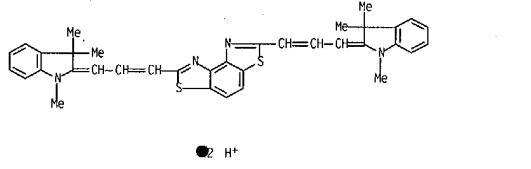
L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CN Benzo[1,2-b:4,5-b']dipyrrole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-3,3,7,7-tetramethyl-, conjugate diacid (9CI) (CA INDEX NAME)



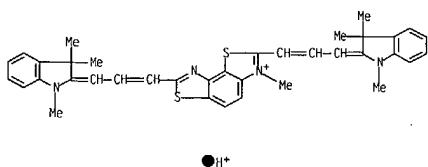
RN 108527-73-7 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-methyl-, conjugate monoacid (9CI) (CA INDEX NAME)



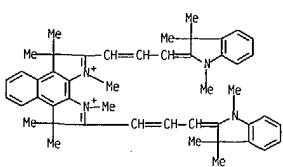
L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 108527-76-0 CAPLUS  
 CN Benzo[1,2-d:3,4-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-methyl-, conjugate monoacid (9CI) (CA INDEX NAME)



RN 108527-77-1 CAPLUS  
 CN Benzo[e]pyrrolo[3,2-g]indolium, 2,9-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dihydro-1,3,3,8,8,10-hexamethyl- (9CI) (CA INDEX NAME)



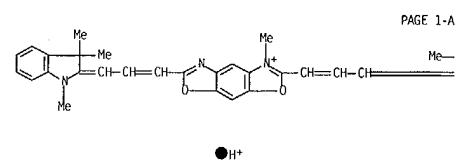
RN 108527-78-2 CAPLUS  
 CN Benzo[e]pyrrolo[3,2-g]indolium, 2,9-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-

L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B

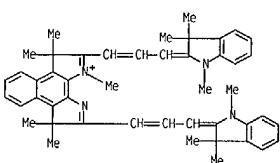


RN 108527-74-8 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisoxazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-methyl-, conjugate monoacid (9CI) (CA INDEX NAME)

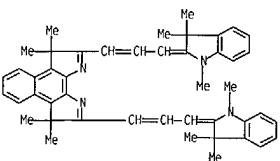


RN 108527-75-9 CAPLUS  
 CN Benzo[2,1-d:3,4-d']bisthiazole, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-, conjugate diacid (9CI) (CA INDEX NAME)

L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CN Benzo[e]pyrrolo[3,2-g]indolium, 2,9-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dihydro-1,3,3,8,8,10-hexamethyl-, conjugate monoacid (9CI) (CA INDEX NAME)

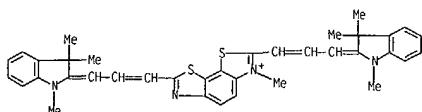


RN 108527-79-3 CAPLUS  
 CN Benzo[e]pyrrolo[3,2-g]indolium, 2,9-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dihydro-1,3,3,8,8,10-hexamethyl-, conjugate diacid (9CI) (CA INDEX NAME)



RN 108544-29-2 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-methyl-, conjugate monoacid (9CI) (CA INDEX NAME)

L7 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

●H<sup>+</sup>

L7 ANSWER 14 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1986-234393 CAPLUS  
 DOCUMENT NUMBER: 104-234393  
 TITLE: Optical information recording material  
 INVENTOR(S): Sato, Tsutomu; Abe, Michiharu; Oba, Hideaki; Ueda, Yutaka; Umehara, Masaki  
 PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60252345	A2	19851213	JP 1984-108440	19840530

PRIORITY APPLN. INFO.: JP 1984-108440 19840530

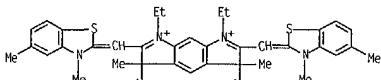
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

## ABSTRACT:

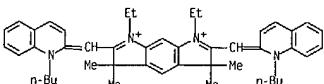
The recording layer of the title material contains I (R = H, unsubstituted alkyl; R<sub>1</sub>, R<sub>2</sub> = alkyl, aryl, aralkyl, alkenyl; A, A<sub>1</sub> = heterocyclic ring; X = anion, k, m = 0, 1, 2). Writing and reading may be carried out by using a semiconductor laser light. Informations recorded have high d<sub>r</sub> and are durable. Thus, a 1,2-dichloroethane soln. of I was spin-coated on a PMMA disk to form a 650  $\text{Å}$  layer. The recording was carried out by using a 790 nm laser light. The signal-to-noise ratio before and after irradn. of the recorded disc with 54,000 lx light for 50 h were 55 and 53 dB, resp.

IT 102509-14-8 102509-15-9 102509-17-1  
 102509-18-2 102522-10-1 102522-12-3  
 RL: USES (Uses)  
 (optical recording material with photosensitive layer contg.)  
 RN 102509-14-8 CAPLUS  
 CN Benzo[1,2-b:5,4-b']dipyrrolium, 2,6-bis[(3,5-dimethyl-2(3H)-benzothiazolylidene)methyl]-1,7-diethyl-3,5-dihydro-3,3,5,5-tetramethyl-1, diiodide (9CI) (CA INDEX NAME)

L7 ANSWER 14 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

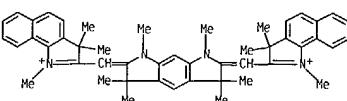
●2 I<sup>-</sup>

RN 102509-15-9 CAPLUS  
 CN Benzo[1,2-b:5,4-b']dipyrrolium, 2,6-bis[(1-buty)-2(1H)-quinolinylidene)methyl]-1,7-diethyl-3,5-dihydro-3,3,5,5-tetramethyl-1, dichloride (9CI) (CA INDEX NAME)

●2 Cl<sup>-</sup>

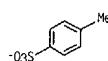
RN 102509-17-1 CAPLUS  
 CN 3H-Benz[g]indolium, 2,2'-[{(5,7-dihydro-1,3,3,5,5,7-hexamethylbenzo[1,2-b:5,4-b']dipyrrole-2,6(1H,3H)-dilidene)dimethylidyne]bis[1,3,3-trimethyl-1, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

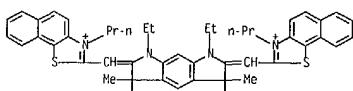
CRN 102509-16-0  
CMF C48 H52 N4

CM 2

L7 ANSWER 14 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

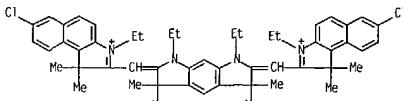
CRN 16722-51-3  
CMF C7 H7 O3 S

RN 102509-18-2 CAPLUS  
 CN Maphtho[2,1-dithiazolium, 2,2'-(1,7-diethyl-5,7-dihydro-3,3,5,5-tetramethylbenzo[1,2-b:5,4-b']dipyrrole-2,6(1H,3H)-dilidene)dimethylidyne]bis[3-propyl-, dibromide (9CI) (CA INDEX NAME)

●2 Br<sup>-</sup>

RN 102522-10-1 CAPLUS  
 CN 2,2'-[{(1,7-diethyl-5,7-dihydro-3,3,5,5-tetramethylbenzo[1,2-b:5,4-b']dipyrrole-2,6(1H,3H)-dilidene)dimethylidyne]bis[7-chloro-3-ethyl-1,1-dimethyl-, diperchlorate (9CI) (CA INDEX NAME)

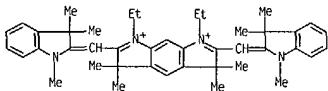
CM 1

CRN 102522-09-8  
CMF C52 H58 Cl2 N4

L7 ANSWER 14 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 2  
CRN 14797-73-0  
CMF C1 04RN 102522-12-3 CAPLUS  
CN Benzof[1,2-b:5,4-b']dipyrrolium, 2,6-bis[(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)methyl]-1,7-diethyl-3,5-dihydro-3,3,5,5-tetramethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

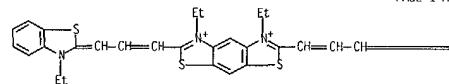
CRN 102522-11-2  
CMF C42 H52 N4

CM 2

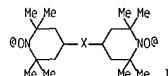
CRN 14797-73-0  
CMF C1 04

L7 ANSWER 15 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

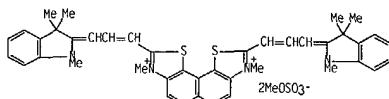
PAGE 1-A



PAGE 1-B

L7 ANSWER 15 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1982:405674 CAPLUS  
DOCUMENT NUMBER: 97:5674  
TITLE: Quenching of triplet states of organic molecules by nitroxyl biradicals  
AUTHOR(S): Shvedova, L. A.; Tatikolov, A. S.; Borisevich, Yu. E.; Kokorin, A. I.; Kuz'min, V. A.  
CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
SOURCE: Izvestiya Akademii Nauk SSSR. Seriya Khimicheskaya (1982), (3), 531-5  
DOCUMENT TYPE: CODEN: IASKA6; ISSN: 0002-3353  
LANGUAGE: Journal Russian  
GRAPHIC IMAGE:ABSTRACT:  
In the quenching of triplet states of arenes, retinal, and a biscyanine dye by I [X = C, C=O, C=C, C=C=O, C=C=O, C=C=C] the contribution of triplet interactions is insignificant. Triplet quenching by radicals contg. a benzene ring is generally faster than that by other radicals because of  $\pi\pi$  complexation.IT 59970-99-9  
RL: PROC (Process)  
(triplet quenching of, by nitroxyl biradicals)  
RN 59970-99-9 CAPLUS  
CN Benzof[1,2-d:5,4-d']bis[thiazolium, 3,5-diethyl-2,6-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

L7 ANSWER 16 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

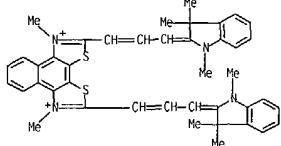
L7 ANSWER 16 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1982:219255 CAPLUS  
DOCUMENT NUMBER: 96:219255  
TITLE: Interaction of chromophores of bis(carbocyanine) dyes - derivatives of isomeric naphthobis(thiazoles) and naphthodipyrrolenes  
AUTHOR(S): Kolesnikov, A. M.; Mikhaleenko, F. A.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Zhurnal Organicheskoi Khimii (1982), 18(2), 441-50  
DOCUMENT TYPE: CODEN: ZORKAE; ISSN: 0514-7492  
LANGUAGE: Journal Russian  
GRAPHIC IMAGE:ABSTRACT:  
Interactions between the chromophores in biscyanines were studied from the electronic absorption spectra of I [81955-56-8] and 3 isomers and of 3 isomeric naphthodipyrrole (indoloindole) derivs. I showed an abnormally high absorption, with  $\lambda_{max}$  519 (epsilon, 30.2 times 104) and 625 nm (epsilon, 6.2 times 104), corresponding to an angle between chromophores of 52.degree.. The heterocyclic bases necessary for the synthesis of the biscyanines were prepd. by cyclization of the resp. bis(thioacetamido)naphthalenes by condensation of the resp. naphthalenedihydrazines with Me iso-Pr Ketone, followed by cyclocondensation. Some other isomeric heterocyclic bases with greater steric hindrance could not be quaternized and thus no biscyanines were prepd. from them.IT 81955-44-4P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(prep., and visible absorption of)  
RN 81955-44-4 CAPLUS  
CN Naphthof[1,2-d:4,3-d']bis[thiazolium, 2,5-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-1,6-dimethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 81955-43-3  
CMF C42 H42 N4 S2

L7 ANSWER 16 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

(Continued)



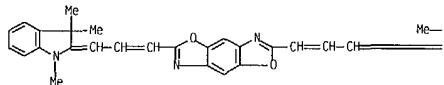
CM 2

CRN 14797-73-0  
CMF C1 04

L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

(Continued)

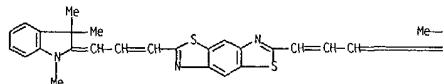
PAGE 1-A



PAGE 1-B

RN 81903-24-4 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

RN 81903-26-6 CAPLUS  
CN Benzo[1,2-d:4,3-d']bisoxazole, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

1982:219254 CAPLUS

ACCESSION NUMBER: 1982:219254 CAPLUS

DOCUMENT NUMBER: 96:219254

TITLE: Conformation of polymethine dyes. II.

NH-bis(cyanines)

AUTHOR(S): Dyadyusha, G. G.; Kolesnikov, A. M.; Mikhailenko, F. A.

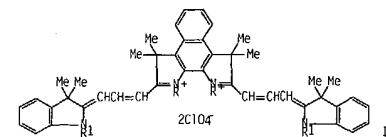
CORPORATE SOURCE: Inst. Org. Khim. Kiev, USSR

SOURCE: Zhurnal Organicheskoi Khimii (1982), 18(1), 206-13

DOCUMENT TYPE: CODEN: ZORKAE; ISSN: 0514-7492

LANGUAGE: Journal

GRAPHIC IMAGE: Russian



## ABSTRACT:

As shown by the angle between chromophores, detd. from the relative peak heights in the electronic absorption spectra, the polymethine chains in I (RR = CH<sub>2</sub>CH<sub>2</sub>, R<sub>1</sub> = Me) [81903-15-3] and I' (RR = (CH<sub>2</sub>)<sub>3</sub>, R<sub>1</sub> = Me) [\*\*81903-17-5\*\*] exist in the pseudo-trans conformation, whereas those in I (R = H, R<sub>1</sub> = Me) [81903-19-7] show a cis conformation of the bond from the first methine group to the central nucleus and those in I' (R = R<sub>1</sub> = H) [81903-21-1] have the cis conformation at both ends of the trimethine chain. These effects are attributed to steric hindrance, which is greater than in benzobisoxazole and benzobisthiazole analogs.

IT 81903-22-2P 81903-24-4P 81903-26-6P

RN: SPN (Synthetic preparation): PREP (Preparation)  
(prepn. of)

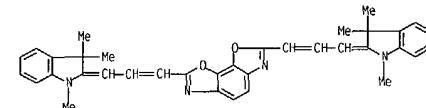
RN 81903-22-2 CAPLUS

CN Benzo[1,2-d:4,5-d']bisoxazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-

indol-2-ylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

(Continued)



IT 81903-15-3 81903-17-5 81903-19-7

81903-21-1 81903-23-3 81903-25-5

81903-27-7 81903-29-9 81903-30-2

RN: PRP (Properties)

(visible spectrum of, conformation in relation to)

RN 81903-22-2 CAPLUS

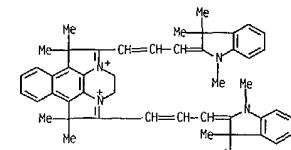
CN Benzo[1,2-d:4,5-d']bisoxazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-

1,4,5,8-tetrahydro-1,1,8,8-tetramethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 81903-14-2

CMF C48 H52 N4



CM 2

CRN 14797-73-0

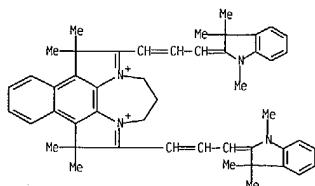
CMF C1 04



L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

RN 81903-17-5 CAPLUS  
 CN 1H-Benzof[*h*]dipyrrolo[1,2,3-ef:3',2',1'-jk][1,5]benzodiazepinediium.  
 2,8-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-  
 4,5,6,9-tetrahydro-1,1,9,9-tetramethyl-, diperchlorate (9CI) (CA INDEX  
 NAME)

CM 1

CRN 81903-16-4  
 CMF C49 H54 N4

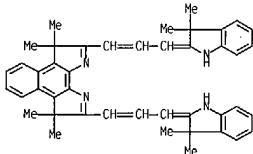
CM 2

CRN 14797-73-0  
 CMF C1 O4

RN 81903-19-7 CAPLUS  
 CN Benzo[e]pyrrolo[3,2-g]indole, 2,9-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dihydro-3,3,8,8-tetramethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

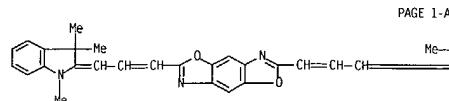


CM 2

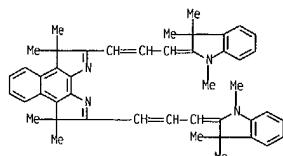
CRN 7601-90-3  
 CMF C1 H04

RN 81903-23-3 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisoxazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 81903-22-2  
 CMF C36 H34 N4 O2

L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CRN 81903-18-6  
 CMF C46 H48 N4

CM 2

CRN 7601-90-3  
 CMF C1 H04

RN 81903-21-1 CAPLUS  
 CN Benzo[e]pyrrolo[3,2-g]indole, 2,9-bis[3-(1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dihydro-3,3,8,8-tetramethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 81903-20-0  
 CMF C44 H44 N4

L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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CM 2

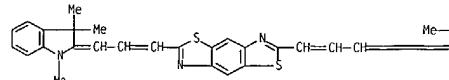
CRN 76-05-1  
 CMF C2 H F3 O2

RN 81903-25-5 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisthiazole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 81903-24-4  
 CMF C36 H34 N4 S2

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L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

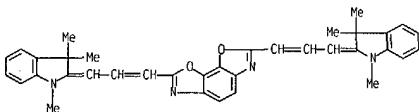
PAGE 1-B



CM 2

CRN 76-05-1  
CMF C2 H F3 O2RN 81903-27-7 CAPLUS  
CN Benzo[1,2-d:4,3-d']bisoxazole, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 81903-26-6  
CMF C36 H34 N4 O2

CM 2

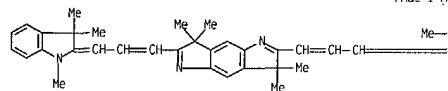
CRN 76-05-1

L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 1

CRN 61109-41-9  
CMF C42 H46 N4

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CM 2

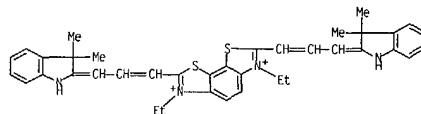
CRN 7601-90-3  
CMF C1 H O4

L7 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CMF C2 H F3 O2

RN 81903-29-9 CAPLUS  
CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-diethyl-, diperchlorate (9CI) (CA INDEX NAME)

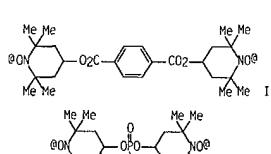
CM 1

CRN 81903-28-8  
CMF C38 H40 N4 S2

CM 2

CRN 14797-73-0  
CMF C1 O4RN 81903-30-2 CAPLUS  
CN Benzo[1,2-b:4,5-b']dipyrrrole, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,3,7,7-tetramethyl-, diperchlorate (9CI) (CA INDEX NAME)

L7 ANSWER 18 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
1982-21272 CAPLUS  
96-21272  
TITLE: Effect of electron spin exchange on the interaction of stable nitroxyl radicals with triplet states of cyanine dyes  
AUTHOR(S): Borisovich, Yu. E.; Kuz'min, V. A.; Kokorin, A. I.; Sennikov, G. P.; Novozhilova, G. A.; Shapiro, A. B.  
CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1981), (9), 2019-23  
DOCUMENT TYPE: CODEN: IASKA6; ISSN: 0002-3353  
LANGUAGE: Journal  
GRAPHIC IMAGE: Russian

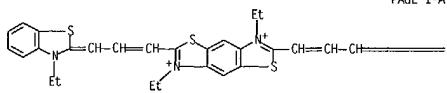


ABSTRACT:  
The efficiency of quenching of the triplet state of a cyanine dye by stable nitroxyl biradicals, as studied by flash photolysis in EtOH at 20°, increased with increasing spin exchange between the paramagnetic centers of the biradical, accompanied by a change in the quenching mechanism (formation of a charge-transfer complex). The quenching rate const. increased from approx. 1.3 times 10<sup>7</sup> to approx. 3.0 times 10<sup>7</sup> l/mol·s as the abs. values of the spin-exchange integral measured in hyperfine interaction const. units increased from 0.2 to 6.4 for I [2516-91-8] and II [42585-21-7], resp., because of the increasing contribution of a triplet to the biradical state (triplet-triplet annihilation is negligible).

IT 54998-67-3  
RL: PRP (Properties)  
(triplet state of, quenching of, with nitroxyl biradicals, mechanism of)

RN 54998-67-3 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazolium, 3,7-diethyl-2,6-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

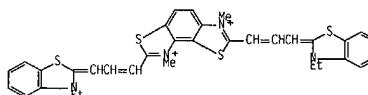
L7 ANSWER 18 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



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L7 ANSWER 19 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1981-621289 CAPLUS  
 DOCUMENT NUMBER: 95-221289  
 TITLE: Effect of the  $\pi$ -electron conjugation of chromophores on the reactivity of triplet states of dyes with two chromophores in electron transfer reactions  
 AUTHOR(S): Borisevich, Yu. E.; Kuz'min, V. A.; Renge, I.  
 CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
 SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1981), (8), 1796-801  
 DOCUMENT TYPE: CODEN: IASKA6; ISSN: 0002-3353  
 LANGUAGE: Journal  
 GRAPHIC IMAGE: Russian



1

ABSTRACT:  
 The rate consts. of quenching of triplet states of biscyanine dyes (e.g., I [\*\*\*\*9701-64-7\*\*\*\*]) by electron acceptors (e.g., p-nitrophenol [106-02-7]) and donors (p-toluidine [106-49-0]) increased and decreased, resp., with increasing degree of  $\pi$ -electron conjugation of chromophores of the dyes. Such changes in reactivity of triplet states were ascribed to decreased ionization potentials and increased electron affinity of the dyes with increased  $\pi$ -electron conjugation of the chromophores.

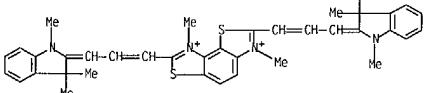
IT 23792-51-0 37005-92-8 47862-94-2  
 47869-38-5 47870-37-1 52029-69-3  
 52029-76-2 54998-67-3 59970-97-7  
 59970-99-9 79701-62-5 79701-64-7

RL: USES (Uses)  
 (triplet state quenching of, by electron donors and acceptors,  
 chromophore conjugation effect on)

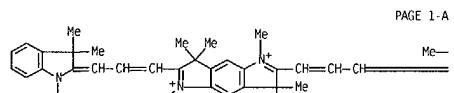
RN 23792-51-0 CAPLUS

CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 19 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 37005-92-8 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl- (9CI) (CA INDEX NAME)

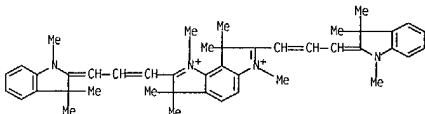


PAGE 1-B

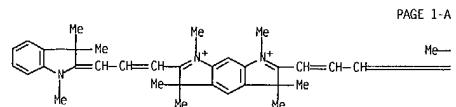


RN 47862-94-2 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-diethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 19 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 indol-2-ylidene)-1-propenyl]-3,6-dihydro-1,3,3,6,8,8-hexamethyl- (9CI) (CA INDEX NAME)

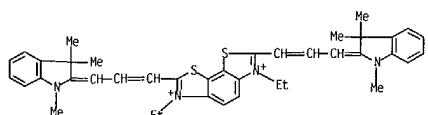


RN 47870-37-1 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-dihydro-1,3,3,5,7,7-hexamethyl- (9CI) (CA INDEX NAME)



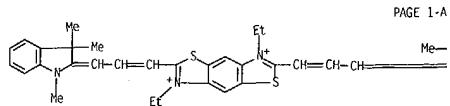
PAGE 1-B

RN 52029-69-3 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-diethyl- (9CI) (CA INDEX NAME)

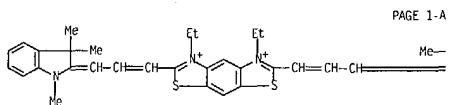


RN 47869-38-5 CAPLUS  
 CN Benzo[1,2-b:3,4-b']dipyrrolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-

L7 ANSWER 19 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 52029-76-2 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-diethyl- (9CI) (CA INDEX NAME)



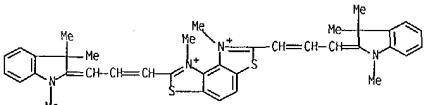
RN 54998-67-3 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

L7 ANSWER 19 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

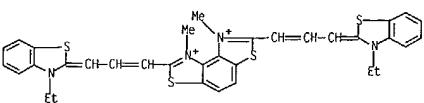
PAGE 1-B



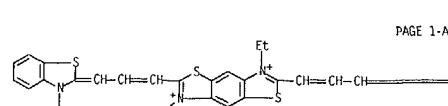
RN 79701-62-5 CAPLUS  
 CN Benzo[2,1-d:3,4-d']bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-1,8-dimethyl- (9CI) (CA INDEX NAME)



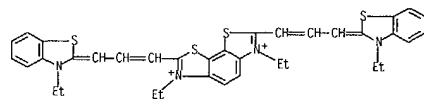
RN 79701-64-7 CAPLUS  
 CN Benzo[2,1-d:3,4-d']bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-1,8-dimethyl- (9CI) (CA INDEX NAME)



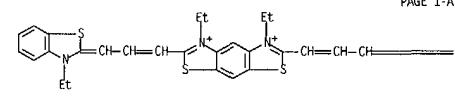
L7 ANSWER 19 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



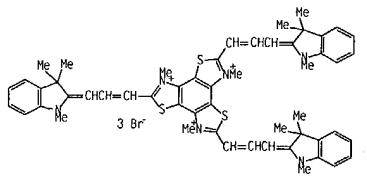
RN 59970-97-7 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



RN 59970-99-9 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



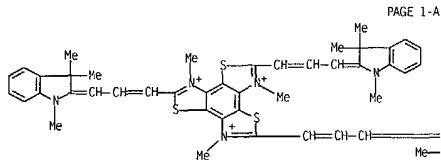
L7 ANSWER 20 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1981:193685 CAPLUS  
 DOCUMENT NUMBER: 94:193685  
 TITLE: Dye with three radially bound chromophores  
 AUTHOR(S): Mikhailenko, F. A.; Dyadyusha, G. G.; Moreiko, O. V.  
 CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
 SOURCE: Ukrainskiy Khimicheskiy Zhurnal (Russian Edition)  
 (1980), 46(12), 1304-6  
 CODEN: UKZHAU; ISSN: 0041-6045  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE:



ABSTRACT:  
 The title dye (I) [77269-78-4] was prep'd. by quaternization of 5,8-trimethylbenzo[1,2-d:3,4-d':5,6-d'']trithiazole [77269-77-3] with Me2SO4, followed by condensation with 2-(formylmethylen)-1,3,3-trimethylindoline [84-83-3]. The absorption spectrum of I in HOAc agreed with that predicted by a theor. model proposed. The chromophore interaction was shown by the redn. in absorbance upon addn. of H2SO4, protonating one of the chromophores.

IT 77269-78-4  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (prep., and spectra of)  
 RN 77269-78-4 CAPLUS  
 CN Benzo[1,2-d:3,4-d':5,6-d'']trithiazolium, 2,5,8-tris[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6,9-trimethyl-, tribromide (9CI) (CA INDEX NAME)

L7 ANSWER 20 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

●3 Br<sup>-</sup>

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L7 ANSWER 21 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1979-153483 CAPLUSDOCUMENT NUMBER: 90153483  
TITLE: Synthesis of new bis(oxastyrlyl)cyanine dyes

AUTHOR(S): Osman, Abdel Megied; Khalil, Zarif H.; Youssef,

Mohamed Salah K.

CORPORATE SOURCE: Fac. Sci., Assiut Univ., Assiut, Egypt.

SOURCE: Indian Journal of Chemistry, Section B: Organic

Chemistry Including Medicinal Chemistry (1978),

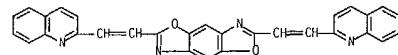
16B(10), 865-8

CODEN: IJSBD8; ISSN: 0376-4699

DOCUMENT TYPE: Journal

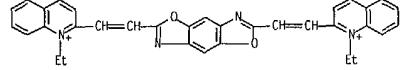
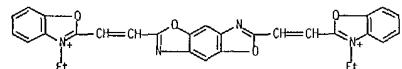
LANGUAGE: English

GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

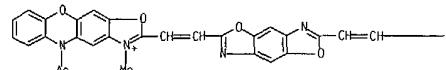
ABSTRACT:  
A series of new styryl cyanine dyes was prep'd. from benzof[4,5-b:4',5'-b']bisoxazole-2,6-dicarboxaldehyde (I) [51074-05-6]. I and an equimolar amt. of quinaldine ethiodide [606-55-3] in the presence of a strong basic catalyst gave quin-oxa dimethine styryl cyanine dye II (R = CHO) [69710-12-9], which was treated with 5-acetyl-2-methyloxazolo[4,5-b]phenoxazine methiodide [606-55-3] to form II (R = RI) [69710-13-0]. I also reacted with bimol. amts. of heterocyclic onium compds. contg. an active Me group to give cyanines III (R2 = Et, Me; A = pyridine, quinoline, benzoxazole, 5-acetylloxazolo[4,5-b]phenoxazine residue) or with corresponding heterocyclic bases to give IV (A = pyridine, quinoline, benzoxazole); similar cyanine dyes were prep'd. from the 3,7-bis(ethiodide) [69710-14-1] of I. The visible absorption spectra of the dyes are discussed.IT 69710-04-9  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prepn. and quaternization of)RN 69710-04-9 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazole. 2,6-bis[2-(2-quinoliny)ethenyl]- (9CI)  
(CA INDEX NAME)IT 69709-99-5P 69710-01-6P 69710-02-7P  
69710-05-0P 69710-07-2P 69710-08-3P  
69710-09-4P 69710-10-7P 69710-11-8P  
69710-13-0P  
RL: SPN (Synthetic preparation); PREP (Preparation)

L7 ANSWER 21 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

(prepn. of)

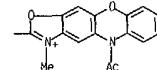
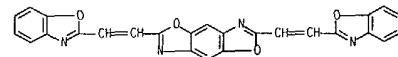
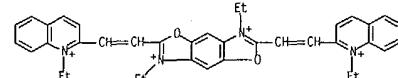
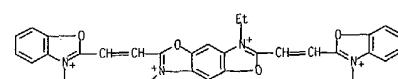
RN 69709-99-5 CAPLUS  
CN Quinolinium. 2,2'-(benzo[1,2-d:4,5-d']bisoxazole-2,6-diyl)di-2,1-ethenediyl)bis[1-ethyl-, diiodide (9CI) (CA INDEX NAME)●2 I<sup>-</sup>RN 69710-01-6 CAPLUS  
CN Benzoaxazolium. 2,2'-(benzo[1,2-d:4,5-d']bisoxazole-2,6-diyl)di-2,1-ethenediyl)bis[3-ethyl-, diiodide (9CI) (CA INDEX NAME)●2 I<sup>-</sup>RN 69710-02-7 CAPLUS  
CN 5H-Oxazolo[4,5-b]phenoxazinium. 2,2'-(benzo[1,2-d:4,5-d']bisoxazole-2,6-diyl)di-2,1-ethenediyl)bis[5-acetyl-3-methyl-, diiodide (9CI) (CA INDEX NAME)

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●2 I<sup>-</sup>

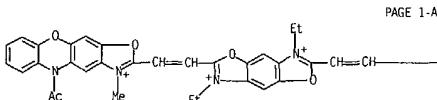
L7 ANSWER 21 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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RN 69710-05-0 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazole. 2,6-bis[2-(2-benzoxazolyl)ethenyl]- (9CI)  
(CA INDEX NAME)RN 69710-07-2 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazolium. 3,7-diethyl-2,6-bis[2-(1-ethylquinolinium-2-yl)ethenyl]-, tetraiodide (9CI) (CA INDEX NAME)●4 I<sup>-</sup>RN 69710-08-3 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazolium. 3,7-diethyl-2,6-bis[2-(3-ethylbenzoxazolium-2-yl)ethenyl]-, tetraiodide (9CI) (CA INDEX NAME)●4 I<sup>-</sup>

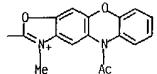
L7 ANSWER 21 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

RN 69710-09-4 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisoxazolium, 2,6-bis[2-(5-acetyl-3-methyl-5H-oxazol[4,5-b]phenoxazinium-2-yl)ethenyl]-3,7-diethyl-, tetraiodide (9CI) (CA INDEX NAME)

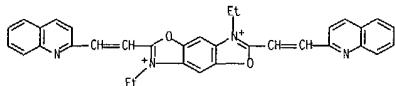


● 1 I-

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RN 69710-10-7 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisoxazolium, 3,7-diethyl-2,6-bis[2-(2-quinolinyl)ethenyl]-, diiodide (9CI) (CA INDEX NAME)

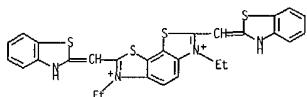


● 2 I-

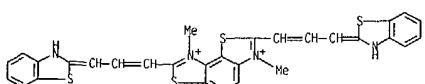
RN 69710-11-8 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisoxazolium, 2,6-bis[2-(2-benzoxazolyl)-1-hydroxyethyl]-3,7-diethyl-, diiodide (9CI) (CA INDEX NAME)

L7 ANSWER 22 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1978-606748 CAPLUS  
 DOCUMENT NUMBER: 89-206748  
 TITLE: Effect of resonance interaction on absorption spectra of dyes with two chromophores  
 AUTHOR(S): Borisevich, Yu. E.  
 CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
 SOURCE: Doklady Akademii Nauk SSSR (1978), 241(6), 1359-62  
 [Phys. Chem.]  
 CODEN: DANKAS: ISSN: 0002-3264  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 ABSTRACT:  
 Since the size of splitting in the absorption spectra of dyes with 2 chromophores depends on the structure of the central nucleus binding the chromophores, then the effect of the nucleus is reduced to regulation of the size of the resonance interaction between the chromophores.

IT 68208-86-60, derivs. 68208-87-70, derivs.  
 68208-88-80, derivs. 68208-89-90, derivs.  
 68208-90-20, derivs. 68208-91-30, derivs.  
 68224-40-80, derivs. 68224-41-90, derivs.  
 RL: PRP (Properties)  
 (absorption spectrum of, resonance interaction effect on)  
 RN 68208-86-6 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis(2(3H)-benzothiazolylidene)-1,3,6-diethyl- (9CI) (CA INDEX NAME)

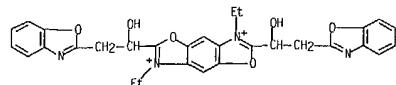


RN 68208-87-7 CAPLUS  
 CN Benzo[1,2-d:3,4-d']bisthiazolium, 2,7-bis[3-(2(3H)-benzothiazolylidene)-1-propenyl]-3,8-dimethyl- (9CI) (CA INDEX NAME)



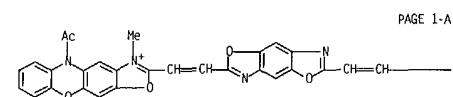
RN 68208-88-8 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(2(3H)-benzothiazolylidene)-1-

L7 ANSWER 21 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



● 2 I-

RN 69710-13-0 CAPLUS  
 CN 5H-Oxazol[4,5-b]phenoxazinium, 5-acetyl-2-[2-[2-(1-ethylquinolinium-2-yl)ethenyl]benzo[1,2-d:4,5-d']bisoxazol-2-yl]ethenyl]-3-methyl-, diiodide (9CI) (CA INDEX NAME)



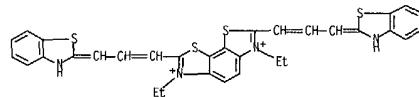
● 2 I-

PAGE 1-B

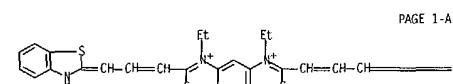


L7 ANSWER 22 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

propenyl]-3,6-diethyl- (9CI) (CA INDEX NAME)



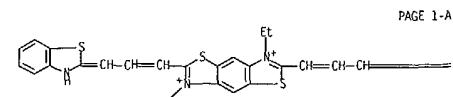
RN 68208-89-9 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(2(3H)-benzothiazolylidene)-1-propenyl]-3,5-diethyl- (9CI) (CA INDEX NAME)



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RN 68208-90-2 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisthiazolium, 2,6-bis[3-(2(3H)-benzothiazolylidene)-1-propenyl]-3,7-diethyl- (9CI) (CA INDEX NAME)



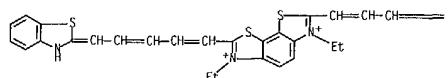
L7 ANSWER 22 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B



RN 68208-91-3 CAPLUS  
 CN Benzol[1,2-d:4,3-d']bis[thiazolium, 2,7-bis[5-(2(3H)-benzothiazolylidene)-1,3-pentadienyl]-3,6-diethyl- (9CI) (CA INDEX NAME)

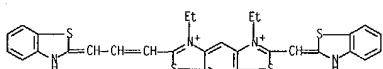
PAGE 1-A



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RN 68224-40-8 CAPLUS  
 CN Benzol[1,2-d:5,4-d']bis[thiazolium, 2-(2(3H)-benzothiazolylidene)methyl]-6-[3-(2(3H)-benzothiazolylidene)-1-propenyl]-3,5-diethyl- (9CI) (CA INDEX NAME)

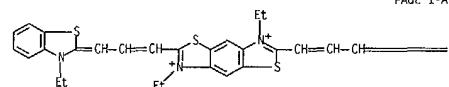


RN 68224-41-9 CAPLUS  
 CN Benzol[1,2-d:5,4-d']bis[thiazolium, 2,6-bis(2(3H)-benzothiazolylidene)methyl]-3,5-diethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 23 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1978-135810 CAPLUS  
 DOCUMENT NUMBER: 88-135810  
 TITLE: Charge transfer complexing in the course of triplet state quenching of carbocyanine dyes by the nitroxyl radical  
 AUTHOR(S): Kuz'min, V. A.; Tatikolov, A. S.; Borisevich, Yu. E.  
 CORPORATE SOURCE: Inst. Chem. Phys., Moscow, USSR  
 SOURCE: Chemical Physics Letters (1978), 53(1), 52-5  
 DOCUMENT TYPE: CODEN: CPHLBC; ISSN: 0009-2614  
 LANGUAGE: Journal  
 GRAPHIC IMAGE: English

L7 ANSWER 23 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CN Benzol[1,2-d:4,5-d']bis[thiazolium, 3,7-diethyl-2,6-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, radical ion(1+)- (9CI) (CA INDEX NAME)

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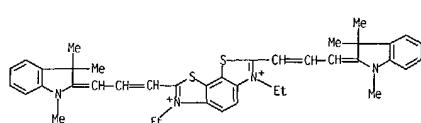
PAGE 1-B



IT 38133-72-1 54998-68-4 62258-13-3  
 62258-15-5 62287-65-4 62287-66-5  
 65936-53-0  
 RL: PROC (Process)  
 (triplet quenching of. by nitroxyl radical)

RN 38133-72-1 CAPLUS  
 CN Benzol[1,2-d:4,5-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-diethyl-, diperchlorate (9CI) (CA INDEX NAME)

CRN 1

CRN 47862-94-2  
 CMF C40 H44 N4 S2

CM 2

CRN 14797-73-0

ABSTRACT:  
 Quenching of triplet state I ( $n = 1, 2, 3$ ) by II occurs via enhanced intersystem crossing on exchange interaction with the radical. Quenching of triplet state carbocyanine dyes with two polymethine chains (e.g., III;  $n = 1,2$ ;  $X = S, C_6H_4$ ;  $R = Me, Et$ ;  $R_1 = H, Me$ ) occurs via partial charge transfer in the collision complex with the radical. In the second case, an increase in the dielec. const. of the solvent leads to an increase of the rate of quenching. In high polarity (propanol, methanol) complete electron transfer from dye triplet state to radical occurs. Kinetic and spectral characteristics of the cation radical of III ( $n = 1$ ;  $X = S, R = Et, R_1 = H$ ) are reported.

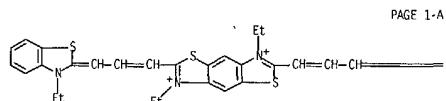
IT 62258-17-7  
 RL: PRP (Properties); PREP (Preparation)  
 (formation and spectrum of)  
 RN 62258-17-7 CAPLUS

L7 ANSWER 23 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
CMF C1 O4



RN 54998-68-4 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazolium, 3,7-diethyl-2,6-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 54998-67-3  
CMF C36 H36 N4 S4

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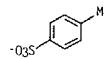


CM 2

CRN 16722-51-3  
CMF C7 H7 O3 S

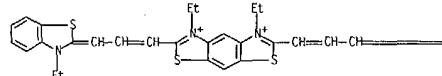
PAGE 1-B

L7 ANSWER 23 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 62258-13-3 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazolium, 3,5-diethyl-2,6-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)

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●2 I-

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RN 62258-15-5 CAPLUS

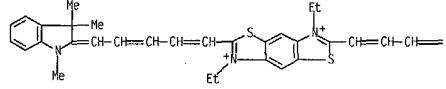
CN Benzo[1,2-d:4,5-d']bisthiazolium, 2,6-bis[5-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3-pentadienyl]-3,7-diethyl-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

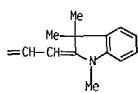
CRN 62258-14-4  
CMF C44 H48 N4 S2

L7 ANSWER 23 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

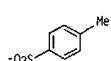
PAGE 1-A



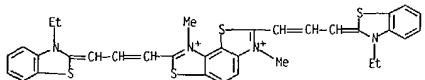
PAGE 1-B



CM 2

CRN 16722-51-3  
CMF C7 H7 O3 S

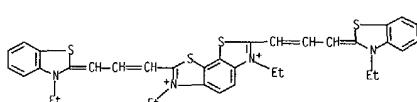
RN 62287-65-4 CAPLUS  
CN Benzo[1,2-d:3,4-d']bisthiazolium, 2,7-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-3,8-dimethyl-, dibromide (9CI) (CA INDEX NAME)



●2 Br-

RN 62287-66-5 CAPLUS

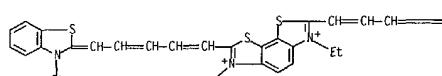
L7 ANSWER 23 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
CN Benzo[1,2-d:4,5-d']bisthiazolium, 3,6-diethyl-2-[5-(3-ethyl-2(3H)-benzothiazolylidene)-1,3-pentadienyl]-7-[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)



●2 I-

RN 65936-53-0 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazolium, 3,6-diethyl-2-[5-(3-ethyl-2(3H)-benzothiazolylidene)-1,3-pentadienyl]-7-[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)

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●2 I-

PAGE 1-B

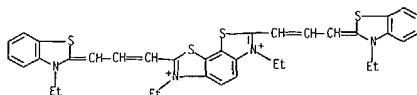


L7 ANSWER 24 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1977:440722 CAPLUS

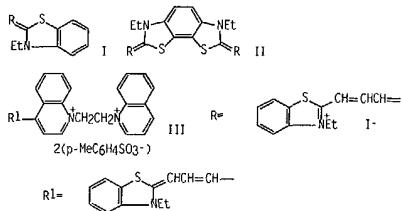
DOCUMENT NUMBER: 87:40722

TITLE: Pressure induced changes in light absorption of polymethine dyes with two interacting chromophores  
AUTHOR(S): Claesson, S.; Backman, C. M.; Borisevich, Yu. E.; Kuz'min, V. A.  
CORPORATE SOURCE: Inst. Phys. Chem., Univ. Uppsala, Uppsala, Swed.  
SOURCE: Chemica Scripta (1976), 10(3), 141-2  
DOCUMENT TYPE: CODEN: CSRPB9; ISSN: 0004-2056  
Journal  
LANGUAGE: English  
GRAPHIC IMAGE:

L7 ANSWER 24 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



● 2 1-



ABSTRACT:

The absorption max. of dyes I [905-97-5], II [62287-66-5], or III [52818-40-3] in polar solvents is shifted only slightly by pressures >1000-314 MPa, but large shifts are obsd. when pressure is applied to II or III in less polar solvents. These large shifts are attributed to changes in the angle between chromophores in II and III.

IT 62287-66-5

RL: PRP (Properties)  
(visible spectrum of, in polar and nonpolar solvents of, effect of pressure on)

RN 62287-66-5 CAPLUS

BN: Benzo[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)

L7 ANSWER 25 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1977:141600 CAPLUS  
DOCUMENT NUMBER: 86:141600

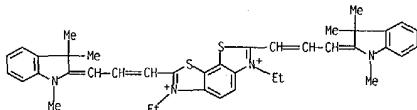
TITLE: Electron transfer from triplet states of bis(cyanine) dyes to nitroxyl radicals  
AUTHOR(S): Borisevich, Yu. E.; Tatikolov, A. S.; Mikhailenko, F. A.; Kuz'min, V. A.  
CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
SOURCE: Doklady Akademii Nauk SSSR (1977), 232(3), 596-9  
[Phys. Chem.]  
CODEN: DANKAS; ISSN: 0002-3264  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE:

L7 ANSWER 25 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

RN 38133-72-1 CAPLUS  
BN: Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-diethyl-, dipерchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 47862-94-2  
CMF C40 H44 N4 S2



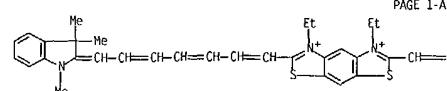
CM 2

CRN 14797-73-0  
CMF C1 O4



RN 52029-80-8 CAPLUS  
BN: Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[7-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3,5-heptatrienyl]-3,5-diethyl-, dichloride (9CI) (CA INDEX NAME)

PAGE 1-A



● 2 C1-

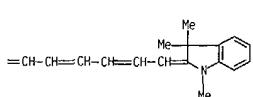
ABSTRACT:

The quenching of the triplet state of bis(cyanine) dyes by the nitroxyl radical I [2226-96-2] at room temp. involved formation of a charge-transfer complex, which decomposes either to the ground state of the dye and I (which is equiv. to intersystem crossing) or to the cation radical of the dye and the anion of I, depending on the dielec. const. of the alc. solvent. The quenching rate const. depends on the difference between the ionization potential of the dye and its triplet energy level, both of which decrease with increasing length of the polymethine chains for dyes with a single chromophore; because of chromophore interaction the triplet energy level of 2-chromophore dyes changes less with increasing polymethine chain length than the ionization potential, thus decreasing the difference and facilitating charge-transfer complex formation. The angle between chromophores has little effect on the quenching rate const. The short-lived cation radical of II [54998-68-4] was detected by its visible absorption spectrum (by difference) with  $\lambda_{max}$  apprx. 700 nm. It apparently disappears by reaction with the alc. solvent to produce H<sup>+</sup> and the alc. alpha.-free radical.

IT 38133-72-1 52029-80-8 54998-68-4  
62259-13-3 62258-15-5 62287-65-4  
62287-66-5

RL: PRP (Properties)  
(quenching rate of triplet state of, by piperidinyloxy radical)

L7 ANSWER 25 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



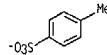
RN 54998-68-4 CAPLUS  
 CN Benzol[1,2-d:4,5-d']bis[thiazolium, 3,7-diethyl-2,6-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 54998-67-3  
CMF C36 H36 N4 S4

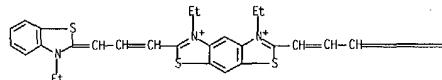
PAGE 1-B

L7 ANSWER 25 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

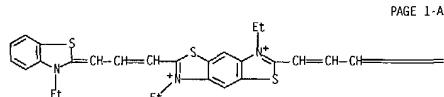


RN 62258-13-3 CAPLUS  
 CN Benzol[1,2-d:5,4-d']bis[thiazolium, 3,5-diethyl-2,6-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)

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●2 1●



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RN 62258-15-5 CAPLUS  
 CN Benzol[1,2-d:4,5-d']bis[thiazolium, 2,6-bis[5-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3-pentadienyl]-3,7-diethyl-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

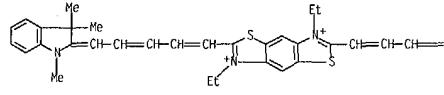
CRN 62258-14-4  
CMF C44 H48 N4 S2

CM 2

CRN 16722-51-3  
CMF C7 H7 O3 S

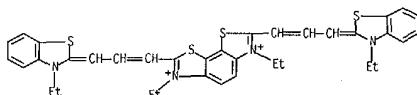
L7 ANSWER 25 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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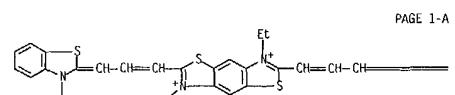
PAGE 1-B

L7 ANSWER 25 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CN Benzol[1,2-d:4,5-d']bis[thiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)



●2 1●

IT 62258-17-7  
 RL: PRP (Properties)  
 (visible absorption spectrum of)  
 RN 62258-17-7 CAPLUS  
 CN Benzol[1,2-d:4,5-d']bis[thiazolium, 3,7-diethyl-2,6-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, radical ion(1+) (9CI) (CA INDEX NAME)



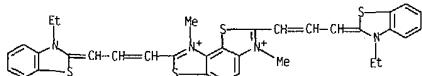
PAGE 1-A



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RN 62287-65-4 CAPLUS  
 CN Benzol[1,2-d:3,4-d']bis[thiazolium, 2,7-bis[3-(3-ethyl)-2(3H)-benzothiazolylidene)-1-propenyl]-3,8-dimethyl-, dibromide (9CI) (CA INDEX NAME)



●2 Br-●

RN 62287-66-5 CAPLUS

L7 ANSWER 26 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1977:18342 CAPLUS  
 DOCUMENT NUMBER: 86:18342  
 TITLE: Reaction of bases of polymethine dyes with transition metal salts  
 AUTHOR(S): Voevodskaya, M. V.; Kuz'min, V. A.; Khudyakov, I. V.  
 CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
 SOURCE: Izvestiya Akademii Nauk SSSR. Seriya Khimicheskaya (1976), (9), 1991-4  
 CODEN: IASKA6; ISSN: 0002-3353  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
 Complex formation between transition metals and carbocyanine dye bases I (R = Me, Et; A = pyridine, quinoline, benzothiazole residue), some styryl analogs, and II [61109-41-9] shifts the absorption max. of the bases to greater wavelength by 80-140 nm. The resulting spectra closely resemble those of the protonated forms of the dye bases, which suggests that coordination to the metal is via the basic N of the ligand rather than the  $\pi$ -bonds of the cyanine chain. The nature of the metal (Co, Cu, Ni, Cr, Cd) has little effect on the spectra of the complexes if formed, but with some of the bases not all of the metals are effective in complex formation. The equil. consts. for complex formation detd. for I (R = Me, A = quinoline residue) [3595-49-1] were approx. 2 orders of magnitude greater for Cu(NO<sub>3</sub>)<sub>2</sub> and Cr(NO<sub>3</sub>)<sub>3</sub> than for the other metal nitrates. The metal complexes are known to show high-temp. supercond.

IT 61109-41-90, transition metal complexes

RL: USES (Uses)

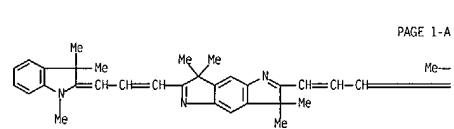
(absorption max. of)

RN 61109-41-9 CAPLUS

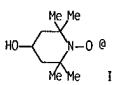
CN Benzo[1,2-b:4,5-b']dipyrrole. 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-3,3,7,7-tetramethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 26 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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L7 ANSWER 27 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1977:10212 CAPLUS  
 DOCUMENT NUMBER: 86:10212  
 TITLE: Role of charge transfer complexes during the quenching of triplet states of carbocyanine dyes by nitroxyl radicals  
 AUTHOR(S): Kuz'min, V. A.; Tatikolov, A. S.; Borisevich, Yu. E.  
 CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
 SOURCE: Doklady Akademii Nauk SSSR (1976), 229(5), 1159-62  
 CODEN: DANKAS; ISSN: 0002-3264  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE:



ABSTRACT:  
 The quenching of the triplet states of 6 carbocyanine dyes by tanol occurs not only according to the mechanism of the increase of intercombination conversion but also according to the mechanism for the formation of charge transfer complexes. For bis-cyanine dyes the mechanism of charge transfer is preferred, due to the very low ionization potential of these dyes in the triplet state.

IT 59970-97-7 59970-98-8 59971-00-5

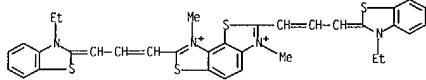
RL: PRP (Properties)

(quenching of triplet states of, by nitroxyl radicals, charge-transfer complex formation in)

RN 59970-97-7 CAPLUS

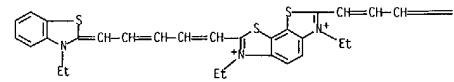
CN Benzo[1,2-d:4,3-d']bisthiazolium. 3,6-diethyl-2-[5-(3-ethyl-2(3H)-benzothiazolylidene)-1,3-pentadienyl]-7-[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

L7 ANSWER 27 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

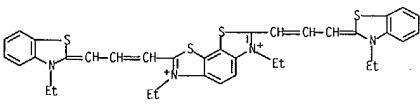


RN 59971-00-5 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bisthiazolium. 3,6-diethyl-2-[5-(3-ethyl-2(3H)-benzothiazolylidene)-1,3-pentadienyl]-7-[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

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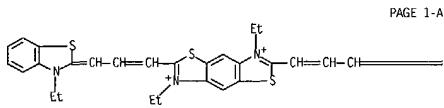
PAGE 1-B



RN 59970-98-8 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bisthiazolium. 2,7-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-3,8-dimethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 28 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1976:551183 CAPLUS  
 DOCUMENT NUMBER: 85:151183  
 TITLE: Effect of the splitting of triplet levels of  
 biscyanine dyes  
 AUTHOR(S): Kuz'min, V. A.; Borisevich, Yu. E.; Dyadyusha, G. G.;  
 Mikhailenko, F. A.  
 CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
 SOURCE: Doklady Akademii Nauk SSSR (1976), 229(1), 131-4  
 [Phys. Chem.]  
 CODEN: DANKAS; ISSN: 0002-3264  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 ABSTRACT:  
 The triplet-triplet absorption spectra of 4 biscyanine dyes (benzothiazole derivs.) were investigated with pulsed photolysis equipment and spectrophotometric recording. The structural formulas of the dyes and their singlet-singlet and triplet-triplet absorption spectra are given, as well as an energy-level scheme (for mono- and biscyanine dyes). The triplet-triplet spectra can be interpreted as detd. by triplet-triplet interaction with singlet-singlet transitions, instead of simply triplet-triplet interaction.

IT 54998-67-3 59970-97-7 59970-98-8  
 59970-99-9  
 RL: PRP (Properties)  
 (splitting of triplet levels of)  
 54998-67-3 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisthiazolium, 3,7-diethyl-2,6-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



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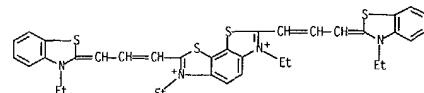


L7 ANSWER 28 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

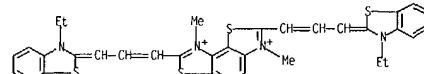
PAGE 1-B



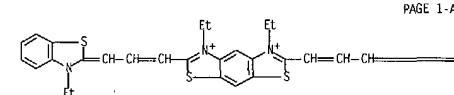
L7 ANSWER 28 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 RN 59970-97-7 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



RN 59970-98-8 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisthiazolium, 2,7-bis[3-(3-ethyl)-2-(3H)-benzothiazolylidene]-1-propenyl]-3,8-dimethyl- (9CI) (CA INDEX NAME)

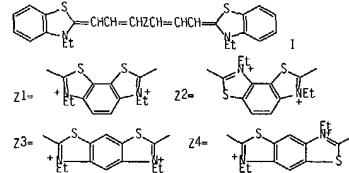


RN 59970-99-9 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisthiazolium, 3,5-diethyl-2,6-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



L7 ANSWER 29 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

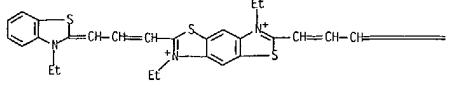
L7 ANSWER 29 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1976:479659 CAPLUS  
 DOCUMENT NUMBER: 85:79659  
 TITLE: Triplet states of biscyanine dyes  
 AUTHOR(S): Borisevich, Yu. E.; Kuz'min, V. A.; Mikhailenko, F. A.; Dyadyusha, G. G.  
 CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
 SOURCE: Doklady Akademii Nauk SSSR (1976), 228(2), 375-8  
 [Phys. Chem.]  
 CODEN: DANKAS; ISSN: 0002-3264  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE:



ABSTRACT:  
 The singlet and (by difference) triplet absorption spectra were detd. for the isomeric biscyanines I ( $Z = Z1-Z4$ ) with angles between chromophores 90, 120, 150, and 180, degree, resp., by direct flash photolysis. The delayed fluorescence was also detd. for I (10-7M) sensitized by anthracene (10-4M) in  $\text{PrOH}$ . The disappearance of the triplet state followed 1st-order kinetics, and the rates were the same in the direct and sensitized cases. In triplet state was obsd. in the presence of  $\text{O}_2$ . Interaction between chromophores was weaker in the case of I ( $Z = Z1\text{CH:CH}$ ) [59971-00-5], since its 2 chromophores absorbed in different spectral regions. This cyanine could not be excited directly to the triplet state, but the latter could be formed with the aid of anthracene. The ordinary and delayed fluorescence spectra were identical, with  $\lambda_{\text{max}} = 730 \text{ nm}$ .

IT 54998-67-3 59970-97-7 59970-98-8  
 59970-99-9 59971-00-5  
 RL: PROC (Process)  
 (triplet state spectra and decay of)  
 RN 54998-67-3 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisthiazolium, 3,7-diethyl-2,6-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

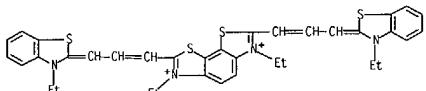
L7 ANSWER 29 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
PAGE 1-A



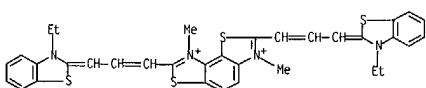
PAGE 1-B



RN 59970-97-7 CAPLUS  
CN Benzo[1,2-d:4,3-d']bis(thiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



RN 59970-98-8 CAPLUS  
CN Benzo[1,2-d:3,4-d']bis(thiazolium, 2,7-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]-3,8-dimethyl- (9CI) (CA INDEX NAME)



RN 59970-99-9 CAPLUS  
CN Benzo[1,2-d:5,4-d']bis(thiazolium, 3,5-diethyl-2,6-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)

L7 ANSWER 30 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1976:166225 CAPLUS

DOCUMENT NUMBER: 84:166225

TITLE: Studies on cyanine dyes. I. Synthesis of new oxacyanine dyes

AUTHOR(S): Osman, A. M.; Khalil, Z. H.

CORPORATE SOURCE: Dep. Chem., Assiut Univ., Assiut, Egypt

SOURCE: Journal of Applied Chemistry &amp; Biotechnology (1975), 25(9), 683-93

CODEN: JACBBD; ISSN: 0375-9210

DOCUMENT TYPE: Journal

LANGUAGE: English

GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:

Bisoxacyanine dyes were prep'd. by reaction of 2,6-dimethylbenzobisoxazole 3,7-bis(ethiodide) (I) [59013-31-9] with active carbonyl compds. Thus, I with PhCHO [100-52-7] in the presence of ZnCl<sub>2</sub>, with acetylacetone [123-54-6] in the presence of EtOH and piperidine, and with maleic anhydride [108-31-6] in the presence of Ac<sub>2</sub>O gave the styrylcyanine (II) [59013-53-5], the merocyanine (III) [59013-54-6], and trimethinecyanine (IV) [59013-55-7], resp.

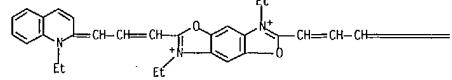
IT 59013-47-7 59013-49-9

RL: SPN (Synthetic preparation): PREP (Preparation)  
(prep., of)

RN 59013-47-7 CAPLUS

CN Benzo[1,2-d:4,5-d']bisoxazolium, 3,7-diethyl-2,6-bis[3-(1-ethyl-2-(1H)-quinolinylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)

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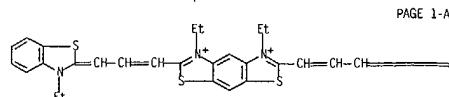


●2 I-

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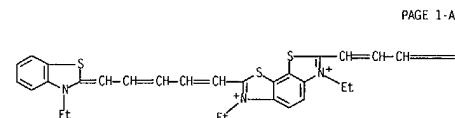
RN 59013-49-9 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazolium, 3,7-diethyl-2,6-bis[3-(1-ethyl)naphtho[1,2-

L7 ANSWER 29 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
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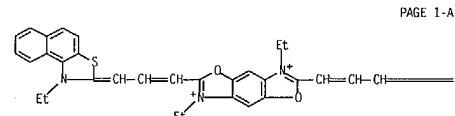
RN 59971-00-5 CAPLUS  
CN Benzo[1,2-d:4,3-d']bis(thiazolium, 3,6-diethyl-2-[5-(3-ethyl-2-(3H)-benzothiazolylidene)-1,3-pentadienyl]-7-[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



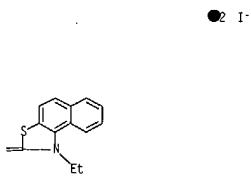
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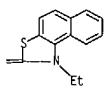
L7 ANSWER 30 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
d]thiazol-2(1H)-ylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)

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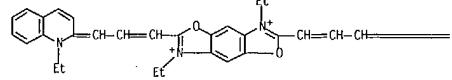


●2 I-

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●2 I-

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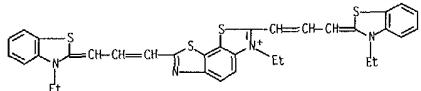
RN 59013-49-9 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisoxazolium, 3,7-diethyl-2,6-bis[3-(1-ethyl)naphtho[1,2-

L7 ANSWER 31 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1975:516914 CAPLUS

DOCUMENT NUMBER: 83:116914  
TITLE: Interaction of chromophores in biscyanines with chromophore chains of various lengths  
AUTHOR(S): Kiprianov, A. I.; Fridman, S. G.; Dyadyusha, G. G.; Kotova, L. I.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Zhurnal Organicheskoi Khimii (1975). 11(4). 891-6  
CODEN: ZORKAE; ISSN: 0514-7492  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
Chromophore interaction was observed in the absorption spectra of 6 bis(bis(cyanines)) (I: m = n = 0-2, R = Et; 2. gtoreq. m > n, R = Me). The sharp splitting in the spectrum of I (n = 1, m = 2, R = Me) [56154-09-7] in comparison with the unsym. I with n = 0 was attributed not to increased interaction between the chromophores, but to a decreased difference in excitation energy between the interacting chromophores. The spectra of the partially acid-decolorized I resembled those of the monocyanines with the same nuclei.

IT 56254-85-4  
RL: PRP (Properties)  
(absorption spectra of, chromophore interaction in)  
RN 56254-85-4 CAPLUS  
CN Benzo[1,2-d:4,3-d']bis(benzothiazolium, 3-ethyl-2,7-bis[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]- (9CI) (CA INDEX NAME)



IT 56045-90-0P 56045-91-1P 56045-92-2P  
56045-93-3P 56154-09-7P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(prep. and spectra of)  
RN 56045-90-0 CAPLUS  
CN Benzo[1,2-d:4,3-d']bis(benzothiazolium, 3,6-diethyl-2,7-bis[(3-ethyl-2-(3H)-benzothiazolylidene)methyl]-1,3-pentadienyl)-6-methyl- (9CI) (CA INDEX NAME)

L7 ANSWER 31 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
ACCESSION NUMBER: 1975:516914 CAPLUS  
DOCUMENT NUMBER: 83:116913  
TITLE: Polymethine dyes with several conjugated chromophores  
AUTHOR(S): Mikhailenko, F. A.; Dyadyusha, G. G.; Boguslavskaya, A. N.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Khimiya Geterotsiklicheskikh Soedinenii (1975). (3). 370-6  
CODEN: KGSSAQ; ISSN: 0132-6244  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
Triscarbocyanines I (n = 2, Z = 22, 23, and 3 isomers of Z3) were prep'd. analogously to I (n = 2, Z = Z1, R = Me, X = MeO4) [55953-42-9] (Mikhailenko, F. A.; Boguslavskaya, A. N., 1971) and their absorption spectra interpreted in terms of chromophore interaction. For those I showing 3 absorption max., the prediction that the frequency difference (DELTA..nu.) between the highest- and lowest-frequency peak would be 20.5 times as great as DELTA..nu. for the 2 max. of the corresponding bisbiscyanine was confirmed. I (n = 3, Z = Z1, R = Et, X = Br) [56044-46-3] was prep'd. by treating 3 moles each of 1,5-diethyl-2,3,6,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrrolium disotyrate [55953-41-8] and 2-(formylmethylen)-1,3,3-trimethylindoline [84-83-3] with Ac20 in refluxing AcOH and condensing the product with 1 mmole quaternary salt 11 [55953-44-1] in refluxing Ac20.

IT 56154-09-7 CAPLUS  
RL: PRP (Properties)  
(absorption spectra of, chromophore interaction in)

RN 33279-11-7 CAPLUS  
CN Benzo[1,2-b:4,5-b']dipyrrolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-(6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrrolium-2(3H)-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-1,3,3-tris(methyl sulfate) (9CI) (CA INDEX NAME)

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RN 33279-11-7 CAPLUS  
CN Benzo[1,2-b:4,5-b']dipyrrolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-(6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrrolium-2(3H)-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-1,3,3-tris(methyl sulfate) (9CI) (CA INDEX NAME)

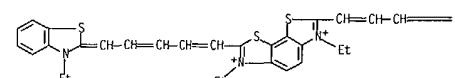
PAGE 1-B



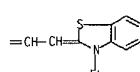
L7 ANSWER 31 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

RN 56045-91-1 CAPLUS  
CN Benzo[1,2-d:4,3-d']bis(benzothiazolium, 3,6-diethyl-2,7-bis[5-(3-ethyl-2-(3H)-benzothiazolylidene)-1,3-pentadienyl]- (9CI) (CA INDEX NAME)

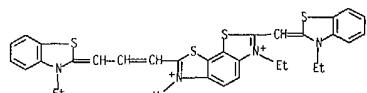
PAGE 1-A



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RN 56045-92-2 CAPLUS  
CN Benzo[1,2-d:4,3-d']bis(benzothiazolium, 3-ethyl-2-[3-(3-ethyl-2-(3H)-benzothiazolylidene)methyl]-7-[3-(3-ethyl-2-(3H)-benzothiazolylidene)-1-propenyl]-6-methyl- (9CI) (CA INDEX NAME)



RN 56045-93-3 CAPLUS

L7 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1975:516913 CAPLUS  
DOCUMENT NUMBER: 83:116913

TITLE: Polymethine dyes with several conjugated chromophores  
AUTHOR(S): Mikhailenko, F. A.; Dyadyusha, G. G.; Boguslavskaya, A. N.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Khimiya Geterotsiklicheskikh Soedinenii (1975). (3). 370-6  
CODEN: KGSSAQ; ISSN: 0132-6244  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
Triscarbocyanines I (n = 2, Z = 22, 23, and 3 isomers of Z3) were prep'd. analogously to I (n = 2, Z = Z1, R = Me, X = MeO4) [55953-42-9] (Mikhailenko, F. A.; Boguslavskaya, A. N., 1971) and their absorption spectra interpreted in terms of chromophore interaction. For those I showing 3 absorption max., the prediction that the frequency difference (DELTA..nu.) between the highest- and lowest-frequency peak would be 20.5 times as great as DELTA..nu. for the 2 max. of the corresponding bisbiscyanine was confirmed. I (n = 3, Z = Z1, R = Et, X = Br) [56044-46-3] was prep'd. by treating 3 moles each of 1,5-diethyl-2,3,6,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrrolium disotyrate [55953-41-8] and 2-(formylmethylen)-1,3,3-trimethylindoline [84-83-3] with Ac20 in refluxing AcOH and condensing the product with 1 mmole quaternary salt 11 [55953-44-1] in refluxing Ac20.

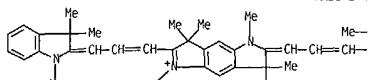
IT 33279-11-7  
RL: PRP (Properties)  
(absorption spectra of, chromophore interaction in)

RN 33279-11-7 CAPLUS  
CN Benzo[1,2-b:4,5-b']dipyrrolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-(6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrrolium-2(3H)-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-1,3,3-tris(methyl sulfate) (9CI) (CA INDEX NAME)

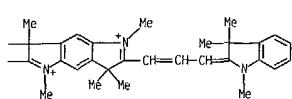
CM 1

CRN 41011-59-0  
CMF C63 H75 N6

PAGE 1-A



L7 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

CRN 21228-90-0  
CMF C H3 O4 S

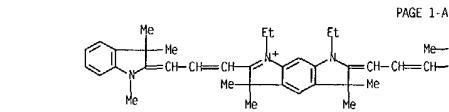
Me-O-SO3-

IT 55953-30-5P 55953-32-7P 55953-34-9P  
 55953-35-0P 56044-46-3P 56044-64-5P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (prepn. and absorption spectra of)  
 RN 55953-30-5 CAPLUS  
 CN Benzol[1,2-b:5,4-b']dipyrrolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-[6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-1,7-diethyl-3,5-dihydro-3,3,5-tetramethylbenzo[1,2-b:5,4-b']dipyrrolium-2(3H)-ylidene]-1-propenyl]-1,7-diethyl-3,5-dihydro-3,3,5-tetramethyl-, triperchlorate (9CI) (CA INDEX NAME)

CM 1

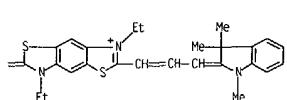
CRN 55953-29-2  
CMF C67 H83 N6

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L7 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

CRN 14797-73-0  
CMF C1 O4

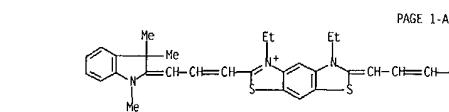
O=C(=O)-O-

RN 55953-34-9 CAPLUS  
 CN Benzol[1,2-b:5,4-b']bisthiazolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-[6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-diethylbenzo[1,2-b:5,4-b']bisthiazolium-2(3H)-ylidene]-1-propenyl]-3,5-diethyl-, triperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 55953-33-8  
CMF C55 H59 N6 S4

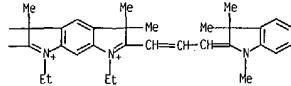
PAGE 1-B



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L7 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B



CM 2

CRN 14797-73-0  
CMF C1 O4

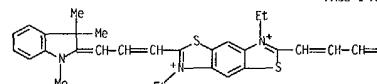
O=C(=O)-O-

RN 55953-32-7 CAPLUS  
 CN Benzol[1,2-d:4,5-d']bisthiazolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-[6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-diethylbenzo[1,2-d:4,5-d']bisthiazolium-2(3H)-ylidene]-1-propenyl]-3,7-diethyl-, triperchlorate (9CI) (CA INDEX NAME)

CM 1

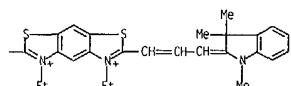
CRN 55953-31-6  
CMF C55 H59 N6 S4

PAGE 1-A



L7 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B



CM 2

CRN 14797-73-0  
CMF C1 O4

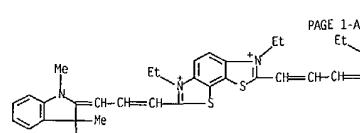
O=C(=O)-O-

RN 55953-35-0 CAPLUS  
 CN Benzol[1,2-d:4,3-d']bisthiazolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-7-[3-[7-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-diethylbenzo[1,2-d:4,3-d']bisthiazolium-2(3H)-ylidene]-1-propenyl]-3,6-diethyl-, triiodide (9CI) (CA INDEX NAME)

CM 1

CRN 55953-33-8  
CMF C55 H59 N6 S4

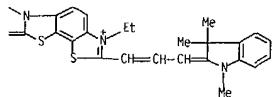
PAGE 1-A



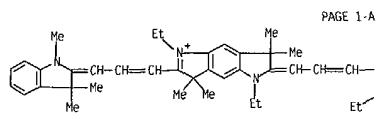
●3 I-

L7 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

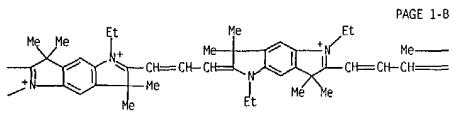
PAGE 1-B



RN 56044-46-3 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-[2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-1,5-diethyl-5,7-dihydro-3,3,7,7-tetramethylbenzo[1,2-b:4,5-b']dipyrrolium-6(3H)-ylidene]-1-propenyl]-1,5-diethyl-3,7-dihydro-3,3,7,7-tetramethyl-, tetrabromide (9CI) (CA INDEX NAME)



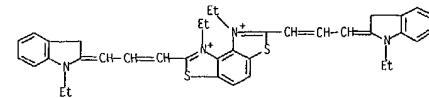
●4 Br-

L7 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CRN 14797-73-0  
 CMF C1 04

L7 ANSWER 33 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 1975:487628 CAPLUS  
 83:87628  
 TITLE: Effect of the structure of polymethine dye molecules and excitation conditions on resonance spectra of spontaneous Raman effect  
 AUTHORS: Tsenter, M. Ya.; Bobovich, Ya. S.; Belyaevskaya, N. M.  
 CORPORATE SOURCE: USSR  
 SOURCE: Optika i Spektroskopiya (1975), 38(1), 71-8  
 CODEN: OPSHAM; ISSN: 0030-4034  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian

ABSTRACT:  
 From a study of the title spectra of 9 different polymethine dyes, excited at 4880 and 6328 Å, resp., it was observed that the distribution of the intensity depended mainly on which region of the electronic absorption of the mols. the excitation occurred. The properties of resonance spectra of the spontaneous Raman effect were compared with the theoretical results, which presumed mixed different electronic states.

IT 56289-58-8  
 RL: PRP (Properties)  
 (Raman spectrum of, excitation conditions effect on resonance and spontaneous)  
 RN 56289-58-8 CAPLUS  
 CN Benzo[2,1-d:3,4-d']bisthiazolium, 1,8-diethyl-2,7-bis[3-(1-ethyl-1,3-dihydro-2H-indol-2-ylidene)-1-propenyl]-, dibromide (9CI) (CA INDEX NAME)



●2 Br-

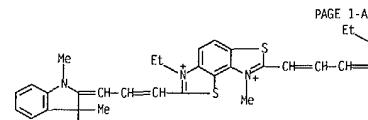
L7 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-C

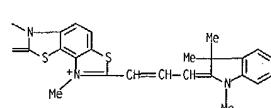


RN 56044-64-5 CAPLUS  
 CN Benzo[1,2-d:3,4-d']bisthiazolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-7-[3-[7-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-ethyl-8-methylbenzo[1,2-d:3,4-d']bisthiazolium-2(3H)-ylidene]-1-propenyl]-3-ethyl-8-methyl-, triperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 56044-63-4  
 CMF C53 H55 N6 S4

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CM 2

L7 ANSWER 34 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1975:450191 CAPLUS

DOCUMENT NUMBER: 83:50191

TITLE: Spontaneous resonance and induced Raman scattering in polymethine dyes

AUTHOR(S): Bobovich, Ya. S.; Bortkevich, A. V.; Tsenter, M. Ya.

CORPORATE SOURCE: USSR

SOURCE: Optika i Spektroskopiya (1975), 38(3), 541-9

CODEN: OPSHAM; ISSN: 0030-4034

DOCUMENT TYPE: Journal

LANGUAGE: Russian

ABSTRACT:

A comparison of the spontaneous resonance spectra of solns. (EtOH, glycerin, Me2SO, and DMF) at 300 and 77 degree.K and the induced Raman spectra in KBr tablets at 77 degree.K of 5 polymethine dyes is given. No correspondence of both types of spectra, according to the no. of lines and frequency was found. A qual. interpretation on the basis of a phys. model is given. The nature of the obstd. absorptive lines and the abnormal width and band shape of several emission lines is discussed.

IT 33279-11-7

RL: PRP (Properties)

(spontaneous resonance and induced Raman scattering by solns. of)

RN 33279-11-7 CAPLUS

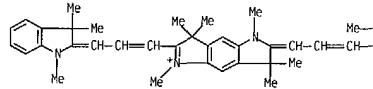
CN Benzof[1,2-b:4,5-b']dipyrronium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-[6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrronium-2(H)-ylidene]-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-, tris(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 41011-59-0

CMF C63 H75 N6

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L7 ANSWER 35 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1975:157806 CAPLUS

DOCUMENT NUMBER: 82:157806

TITLE: Interaction of biscyanine chromophores from thiazolo[5,4-d]thiazole

AUTHOR(S): Nikhailenko, F. A.; Ishchenko, I. I.

CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR

SOURCE: Ukrainskii Khimicheskii Zhurnal (Russian Edition) (1974), 40(12), 1331-3

CODEN: UKZHAU; ISSN: 0041-6045

DOCUMENT TYPE: Journal

LANGUAGE: Russian

GRAPHIC IMAGE: For diagram(s), see printed CA issue.

ABSTRACT:

Thiazolothiazole biscyanine I [54906-92-2] absorbs at longer wavelength [ $\lambda_{max}$  (MeNO2) 729 nm] than the analogous benzobisthiazole biscyanine II [54998-68-4] (650 nm), whereas the monocyanine III [54939-09-2] absorbs in the same region (578 nm) as its benzobisthiazole analog. 3,6-Diethyl-2,5-dimethylthiazolo[5,4-d]thiazolium bis(tetrafluoroborate) [54906-90-0], the key intermediate in synthesis of I, was prepd. by condensation of isopropylidene malonate [2033-24-1] with 3-ethyl-5-methyl-2-(methylthio)thiazolo[5,4-d]thiazolium Me sulfate [54939-07-0], followed by hydrolysis, decarboxylation, and quaternization.

IT 54998-68-4

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prep. of)

RN 54998-68-4 CAPLUS

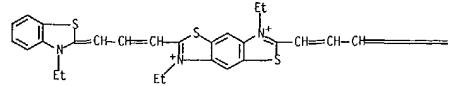
CN Benzo[1,2-d:4,5-d']bisthiazolium, 3,7-diethyl-2,6-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 54998-67-3

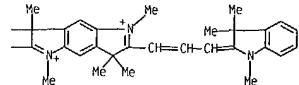
CMF C36 H36 N4 S4

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L7 ANSWER 34 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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CM 2

CRN 21228-90-0

CMF C H3 O4 S

Me-O-SO3-

L7 ANSWER 35 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

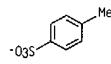
PAGE 1-B



CM 2

CRN 16722-51-3

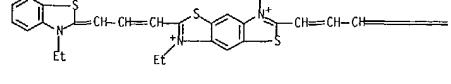
CMF C7 H7 O3 S



CRN 54998-67-3

CMF C36 H36 N4 S4

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L7 ANSWER 36 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1975:126597 CAPLUS

DOCUMENT NUMBER: 82:126597

TITLE: Effect of the structure of terminal heterocycles on the absorption spectra of biscyanine dyes

AUTHOR(S): Mikhaleenko, F. A.; Friedman, S. G.; Dyadyusha, G. G.; Moskaleva, R. N.

CORPORATE SOURCE: Inst. Org. Khim. Kiev, USSR

SOURCE: Zhurnal Organicheskoi Khimii (1974), 10(11), 2442-6

CODEN: ZORKAE: ISSN: 0514-7492

DOCUMENT TYPE: Journal

LANGUAGE: Russian

GRAPHIC IMAGE: For diagram(s). see printed CA Issue.

ABSTRACT:

In a series of biscarbocyanine derivs. (I, R = substituted naphthothiazolinylidene, naphthoxazolinylidene, benzobisthiazolinylidene, or thiazolinylidene) or benzo[1,2-d:4,3-d']bisthiazole, the occurrence of auxochromic groups on the inner side of the angle between the chromophores (in the all-trans configuration) increases the relative intensity of the absorption at shorter wavelength. In I (R = 3-ethyl-2-benzothiazolinylidene) the 2 absorptions are of approx. equal intensity, indicating an angle between chromophores of approx. 90 degree. I were prep'd. by reaction of 2,7-bis(anilinovinyl)-3,6-diethylbenzo[1,2-d:4,3-d']bisthiazolium bis(p-toluenesulfonate) [54581-47-4] with the appropriate quaternary compds. in refluxing Ac2O contg. pyridine and Et3N.

IT 54581-36-1P 54581-37-2P 54581-38-3P

54581-39-4P 54581-41-8P 54581-43-0P

RL: PRP (Properties); SPA (Synthetic preparation); PREP (Preparation) (prepn. and spectral properties of)

RN 54581-36-1 CAPLUS

CN Benzol[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(1-ethyl)naphtho[1,2-d]thiazol-2(1H)-ylidene]-1-propenyl-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

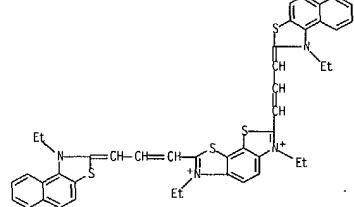
CM 1

CRN 54581-35-0

CMF C44 H40 N4 S4

L7 ANSWER 36 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

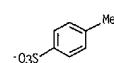
L7 ANSWER 36 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

CRN 16722-51-3

CMF C7 H7 O3 S

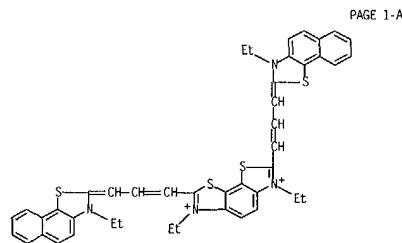


RN 54581-37-2 CAPLUS

CN Benzol[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl)naphtho[2,1-d]thiazol-2(3H)-ylidene]-1-propenyl-, diiodide (9CI) (CA INDEX NAME)

L7 ANSWER 36 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

L7 ANSWER 36 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



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●2 I-

RN 54581-39-4 CAPLUS

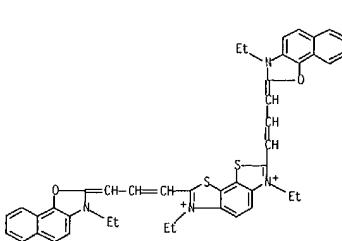
CN Benzol[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl)naphth[2,1-d]oxazol-2(3H)-ylidene]-1-propenyl-, diiodide (9CI) (CA INDEX NAME)

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●2 I-

RN 54581-38-3 CAPLUS  
CN Benzol[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(1-methyl)naphth[1,2-d]oxazol-2(1H)-ylidene]-1-propenyl-, diiodide (9CI) (CA INDEX NAME)



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●2 I-

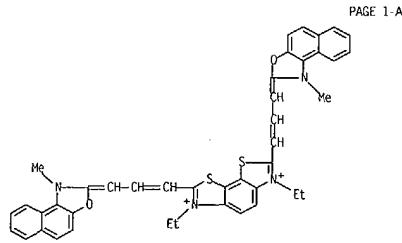
RN 54581-41-8 CAPLUS

CN Benzol[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(8-ethyl-2-phenyl)benzol[1,2-d:3,4-d']bisthiazol-7(8H)-ylidene]-1-propenyl-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 54581-40-7

CMF C50 H42 N6 S6

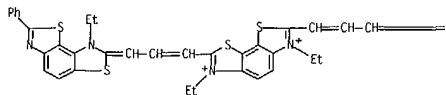


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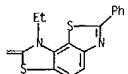
●2 I-

L7 ANSWER 36 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

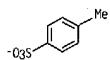
PAGE 1-A



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CM 2

CRN 16722-51-3  
CMF C7 H7 O3 S

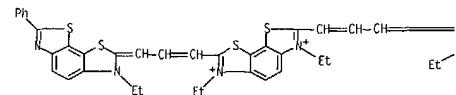
RN 54581-43-0 CAPLUS  
CN Benzo[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl-7-phenylbenzo[1,2-d:4,3-d']bisthiazol-2(3H)-ylidene)-1-propenyl]-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

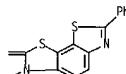
CRN 54581-42-9  
CMF C50 H42 N6 S6

L7 ANSWER 36 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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CM 2

CRN 14797-73-0  
CMF C1 O4

L7 ANSWER 37 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1975-126584 CAPLUS

DOCUMENT NUMBER: 82:126584

TITLE: Effect of the electron symmetry of chromophores on their interaction in biscyanine dyes

AUTHOR(S): Mikhailenko, F. A.; Fridman, S. G.; Dyadyusha, G. G.; Savina, T. I.

CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR

SOURCE: Zhurnal Organicheskoi Khimii (1974), 10(11), 2446-9

DOCUMENT TYPE: CODEN: ZORKAE; ISSN: 0514-7492

LANGUAGE: Journal

GRAPHIC IMAGE: Russian

ABSTRACT: For diagram(s), see printed CA issue.

ABSTRACT:  
In a series of 10 sym biscyanine derivs. of benzo[1,2-d:4,3-d']bisthiazole, the interaction between the chromophores (splitting of the long-wavelength absorption into 2 peaks) was greatest for compds. such as I [38309-13-6], in which the central and terminal nuclei had similar basicity. If the terminal nuclei were more (as in II [54642-15-8]) or less basic than the central nucleus, the interaction was diminished. Localization of the pos. charge or unshared electron pair in the central nucleus in both the ground and excited state led to decreased interaction.

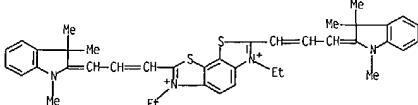
IT 38133-72-1 38309-13-6 54673-56-2

RL: PRP (Properties)  
(chromophore interaction in)

RN 38133-72-1 CAPLUS

CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-diethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 47862-94-2  
CMF C40 H44 N4 S2

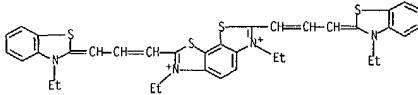
CM 2

CRN 14797-73-0  
CMF C1 O4

L7 ANSWER 37 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



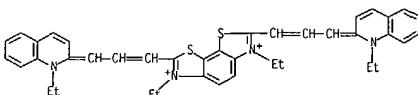
RN 38309-13-6 CAPLUS  
CN Benzo[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, dibromide (9CI) (CA INDEX NAME)



●2 Br-

RN 54673-56-2 CAPLUS

CN Benzo[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(1-ethyl-2(1H)-quinalinylidene)-1-propenyl]-, diiodide (9CI) (CA INDEX NAME)

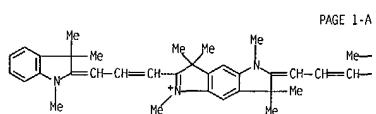


●2 I-

L7 ANSWER 38 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1975:49587 CAPLUS  
 DOCUMENT NUMBER: B2:49587  
 TITLE: Effect of a high resonance radiation field on degenerated vibrations in polyatomic molecules  
 AUTHOR(S): Bobovich, Ya. S.; Bortekovich, A. V.; Tsenter, M. Ya.  
 CORPORATE SOURCE: Gos. Opt. Inst. im. Vavilova, Leningrad, USSR  
 SOURCE: Pis'ma v Zhurnal Ekperimental'noi i Teoreticheskoi Fiziki (1974), 20(2), 111-15  
 CODEN: PZETAB; ISSN: 0370-274X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE: For diagram(s), see printed CA Issue.  
 ABSTRACT:  
 The laser-stimulated and spontaneous Raman spectra were simultaneously studied in the tricyanine: I and some related polymethine dyes at 77. degree.K. Addnl. lines were found in the laser-stimulated spectra in the low frequency range. These lines are supposed to arise from the removal of the local degeneracy by the high field.

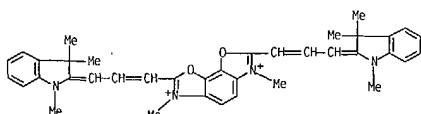
IT 33279-11-7  
 RL: PRP (Properties)  
 (Raman spectra of)  
 RN 33279-11-7 CAPLUS  
 CN Benzol[1,2-b:4,5-b']dipyrrolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-[6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrrolium-2(1H)-ylidene]-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-, tris(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1  
 CRN 41011-59-0  
 CMF C63 H75 N6



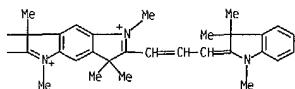
L7 ANSWER 39 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1975:45006 CAPLUS  
 DOCUMENT NUMBER: B2:45006  
 TITLE: Bis(Carboxyanines) from angular dimethylbenzobisoxazoles  
 AUTHOR(S): Mikhailenko, F. A.; Boguslavskaya, A. N.; Geiko, V. V.  
 CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
 SOURCE: Ukrainskii Khimicheskiii Zhurnal (Russian Edition) (1974), 40(9), 997-9  
 CODEN: UKZHAU; ISSN: 0041-6045  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE: For diagram(s), see printed CA Issue.  
 ABSTRACT:  
 The visible spectrum of benzobisoxazole dicarboxyanine I [53816-96-9] showed a more intense peak at shorter wavelength and a less intense peak at longer wavelength, from the ratio of which the angle between the chromophores of I was calcd. as 65. degree.. The calcd. angle for II [53816-98-1] was 120. degree., in agreement with the expected 120. degree.. I was prep'd. by redn. (Sn-HCl) of 3,6-dinitropyrocatechol [53816-91-4] to the diamine tetracetate, cyclization quaternization, and condensation with 2-(formylmethene)-1,3,3-trimethylindoline (III) [84-83-3]. II was prep'd. by reaction of III with quaternized 2,7-dimethylbenzo[1,2-d:3,4-d']bisoxazole [53816-93-6].

IT 53816-96-9P 53816-98-1P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (prep., and electronic spectra of)  
 RN 53816-96-9 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bisoxazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl-, diiodide (9CI) (CA INDEX NAME)



L7 ANSWER 38 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B



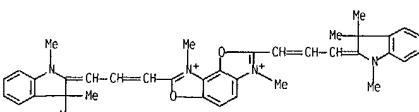
CM 2

CRN 21228-90-0  
 CMF C1 H3 O4 S

Me-O-SO3-

L7 ANSWER 39 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 1  
 CRN 53816-97-0  
 CMF C38 H40 N4 O2



CM 2

CRN 14797-73-0  
 CMF C1 O4



RN 53816-98-1 CAPLUS  
 CN Benzo[1,2-d:3,4-d']bisoxazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl-, diperchlorate (9CI) (CA INDEX NAME)

L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1974-493013 CAPLUS

DOCUMENT NUMBER: 81-93013

TITLE: Vinylene homologs of biscarbocyanines with conjugated chromophores

AUTHOR(S): Mikhailenko, F. A.; Mushkalio, I. L.; Boguslavskaya, A. N.

CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR

SOURCE: Ukrainskii Khimicheskii Zhurnal (Russian Edition)

(1974), 40(3), 253-8

CODEN: UKZHAU; ISSN: 0041-6045

DOCUMENT TYPE: Journal

LANGUAGE: Russian

ABSTRACT:

For bis(carbocyanine) homologs of structure I ( $Z = 21$  or  $22$ ), the single  $\lambda_{\text{max}}$  shifted to longer wavelength by  $\sim 130$  nm for each addn. vinylene group ( $n = 0-3$ ). For I ( $Z = 24$ ) the  $\lambda_{\text{max}}$  at longer wavelength shifted by  $\sim 130$  nm for each vinylene group, but the  $\lambda_{\text{max}}$  at shorter wavelength shifted by  $\sim 90$  nm per vinylene group. For I ( $Z = 23$ ) the shifts were  $116-19$  and  $84-9$  nm, resp. I ( $Z = 21$ ,  $n = 0-2$ ) were prep'd. from 3,7-diethyl-2,6-dimethylbenzo[1,2-d:4,5-d']bis[1H-indolene]sulfonate (I) [52029-82-0] and the appropriate indole derivs: methylated 3,3-dimethyl-2-(methylthio)indolene [19369-75-6], 2-(formylmethylene)-1,3,3-trimethylindoline [84-83-1], and 2-(4-acetanilidobutadienyl)-1,3,3-trimethylindoline perchlorate [40300-62-7]. I ( $Z = 21$ ,  $n = 3$ ) [52029-68-2] was prep'd. by condensing I with glutamic dialdehyde anil anilide p-toluenesulfonate [52029-83-1] in refluxing 1:2 AcOH-Ac2O contg. a catalytic amt. of pyridine, followed by treatment of the product with 1,3,3-trimethyl-2-methyleneindoline [118-12-7]. I ( $Z = 22$ ,  $n = 2,3$ ) were prep'd. similarly from 1,2,3,3,5,6,7,7-octamethyl-3H,7H-benzo[1,2-b:4,5-6']dipyrrolium bis(Me sulfate) [52029-84-2]. I ( $Z = 23$  or  $24$ ) were prep'd. in an analogous manner.

IT 31038-49-0P 52029-66-0P 52029-68-2P

52029-70-6P 52029-72-8P 52029-73-9P

52029-75-1P 52029-77-3P 52029-79-5P

52029-80-8P 52109-32-7P 52109-34-9P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prep'n. of)

RN 31038-49-0 CAPLUS

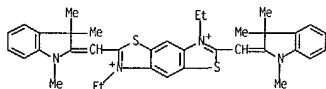
CN Benzol[1,2-b:5,4-b']dipyrrolium, 2,6-bis[5-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3-pentadienyl]-1,3,3,5,5,7-hexamethyl-, dipерхлорат (9CI) (CA INDEX NAME)

CM 1

CRN 47884-11-7

CMF C48 H56 N4

L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

CRN 14797-73-0

CMF C1 O4



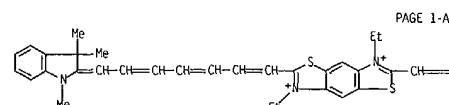
RN 52029-68-2 CAPLUS

CN Benzol[1,2-d:4,5-d']bis[1H-indolene]sulfonate, 2,6-bis[7-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3,5-heptatrienyl]-3,7-diethyl-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

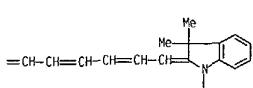
CM 1

CRN 52029-67-1

CMF C48 H52 N4 S2



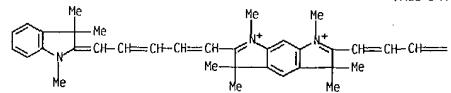
PAGE 1-A



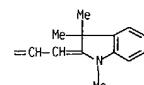
PAGE 1-B

L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-A



PAGE 1-B



CM 2

CRN 14797-73-0

CMF C1 O4



RN 52029-66-0 CAPLUS

CN Benzo[1,2-d:4,5-d']bis[1H-indolene]sulfonate, 2,6-bis[(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-3,4-diethyl-, dipерхлорат (9CI) (CA INDEX NAME)

CM 1

CRN 52029-65-9

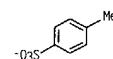
CMF C36 H40 N4 S2

L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 2

CRN 16722-51-3

CMF C7 H7 O3 S



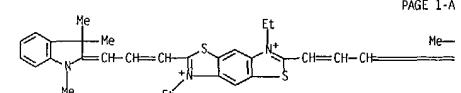
RN 52029-70-6 CAPLUS

CN Benzo[1,2-d:4,5-d']bis[1H-indolene]sulfonate, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-diethyl-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

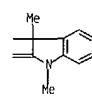
CM 1

CRN 52029-69-3

CMF C40 H44 N4 S2



PAGE 1-A



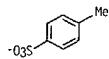
PAGE 1-B

CM 2

CRN 16722-51-3

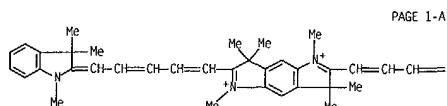
CMF C7 H7 O3 S

L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

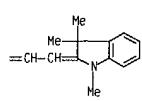


RN 52029-72-8 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[5-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3-pentadienyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 52029-71-7  
CMF C48 H56 N4

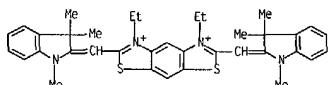
PAGE 1-B



CM 2

CRN 14797-73-0  
CMF C1 O4

L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

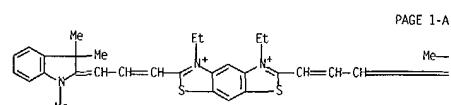


CM 2

CRN 14797-73-0  
CMF C1 O4

RN 52029-77-3 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-diethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 52029-76-2  
CMF C40 H44 N4 S2

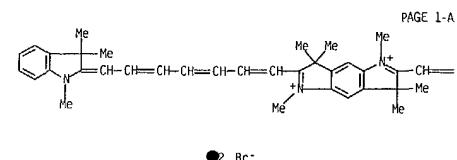
PAGE 1-B



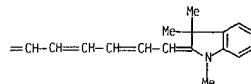
L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 52029-73-9 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[7-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3,5-heptatrienyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-, dibromide (9CI) (CA INDEX NAME)

●2 Br<sup>-</sup>

PAGE 1-B

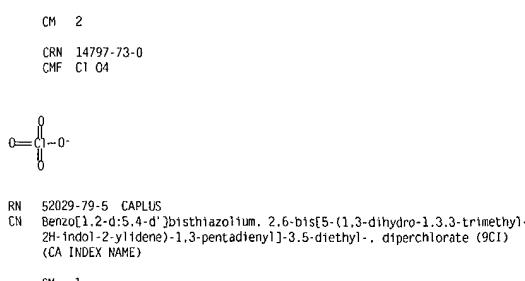


RN 52029-75-1 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)methyl]-3,5-diethyl-, diperchlorate (9CI) (CA INDEX NAME)

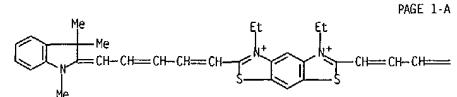
CM 1

CRN 52029-74-0  
CMF C36 H40 N4 S2

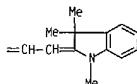
L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 1

CRN 52029-78-4  
CMF C44 H48 N4 S2

PAGE 1-B

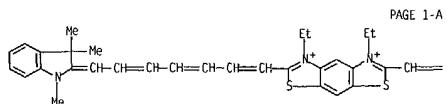


CM 2  
CRN 14797-73-0  
CMF C1 O4

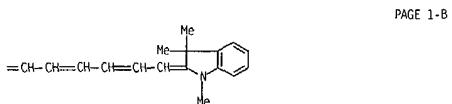
L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 52029-80-8 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[7-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3,5-heptatrienyl]-3,5-diethyl-, dichloride (9CI) (CA INDEX NAME)

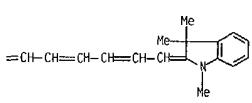


●2 Cl-



RN 52109-32-7 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bisthiazolium, 2,6-bis[5-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3-pentadienyl]-3,7-diethyl-, dibromide (9CI) (CA INDEX NAME)

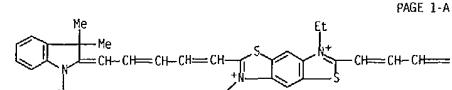
L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

CRN 14797-73-0  
CMF Cl 04

L7 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

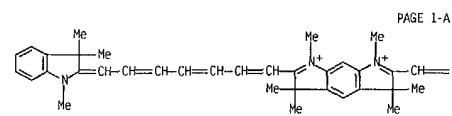


●2 Br-



RN 52109-34-9 CAPLUS  
 CN Benzo[1,2-b:5,4-b']dipyrrolium, 2,6-bis[7-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3,5-heptatrienyl]-3,6-dihydro-1,3,3,5,7-hexamethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

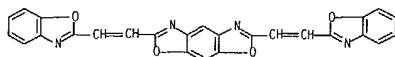
CRN 52109-33-8  
CMF C52 H60 N4

L7 ANSWER 41 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1974-438781 CAPLUS  
 DOCUMENT NUMBER: 81-38781  
 TITLE: Treating organic material with superior fluorescent whitening agent  
 INVENTOR(S): Yoshida, Zenichi; Miyahara, Sadayasu; Takagi, Masaru  
 PATENT ASSIGNEE(S): Shinroh Co., Ltd.  
 SOURCE: Jpn. Tokyo Kono, 5 pp.  
 CODEN: JAXXAD  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 48037067	B4	19731108	JP 1970-22381	19700317
PRIORITY APPLN. INFO.:			JP 1970-22381	19700317

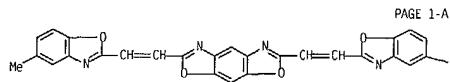
ABSTRACT:  
 The bis(benzoxazolylvinyl)benzobisoxazoles (I), R = Me, H, Cl, MeO, tert-butyl were used as fluorescent brighteners for cotton and synthetic fibers, i.e. polyamide, polyester, acetate, and rayon fibers, or as fluorescent pigments in lithographic or gravure printing ink. The brighteners used included 2,6-bis(2-(benzoxazolyl)vinyl)benzo[1,2-d:5,4-d']bisoxazole (I, R = H) [\*\*\*51750-60-8\*\*\*].

IT 51750-60-8  
 RL: USES (Uses)  
 (Fluorescent brighteners, for printing inks and textiles)  
 RN 51750-60-8 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisoxazole, 2,6-bis[2-(2-benzoxazolyl)ethenyl]- (9CI) (CA INDEX NAME)



L7 ANSWER 42 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1974:134942 CAPLUS  
 DOCUMENT NUMBER: 80:134942  
 TITLE: Fluorescent heterocyclic ethylene compounds  
 INVENTOR(S): Miyahara, Sadayasu; Takagi, Masaru; Yoshida, Zenichi  
 PATENT ASSIGNEE(S): Shinohi Co., Ltd.  
 SOURCE: Jpn. Tokkyo Koho. 11 pp.  
 CODEN: JAXXAD  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

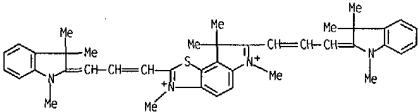
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 48012162	B4	19730418	JP 1970-22383	19700317
PRIORITY APPLN. INFO.:		JP 1970-22383		19700317
ABSTRACT: Fluorescent whiteners (I, R = H, Cl, Me, MeO, Me3C; X = O, S, NH) were prep'd. and were used to whiten natural and synthetic materials. Thus, a mixt. of 4,6-diaminoresorcinol and 5,2-Me(O)C6H3NHCOC(=O)CHCO2H was heated in polyphosphoric acid at 175-85 deg. for 3 hr to give fluorescent whitener (I, R = Me, X = O) [50602-63-6]. The other I were similarly prep'd.				
IT 50602-63-6P	RL: INF (Industrial manufacture); PREP (Preparation) (prep'n. of)			
RN 50602-63-6 CAPLUS	CN Benzol[1,2-d:5,4-d']bisoxazole, 2,6-bis[2-(5-methyl-2-benzoxazolyl)ethenyl]- (9CI) (CA INDEX NAME)			



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-Me

L7 ANSWER 43 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



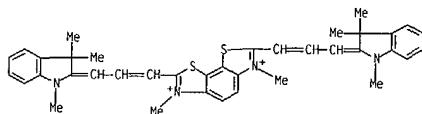
L7 ANSWER 43 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1973:527350 CAPLUS  
 DOCUMENT NUMBER: 79:127350  
 TITLE: Cyanine dyes with two conjugated chromophores. XXI. Steric effects in spectra of bis(cyanines) from derivatives of pyrrolobenzothiazole, thiazolobenzothiazine, and thiazolobenzothiazepine  
 AUTHOR(S): Kiprianov, A. I.; Fridman, S. G.; Mikhaleenko, F. A.  
 CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
 SOURCE: Zhurnal Organicheskoi Khimii (1973), 9(6), 1253-7  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 ABSTRACT:  
The ratio of the molar absorptivity of the peak at longer wavelength to that of the peak at shorter wavelength increased with increasing angle between the chromophores in the series (compd. angle. and ratio given): pyrrolobenzothiazole biscyanine IX = CMe2 [42228-43-3], 93.deg., 0.88; benzobisthiazole biscyanine IX = S [19695-75-1], 95.deg., 0.96; thiazolobenzothiazine biscyanine II [42222-45-7], 112.deg., 1.74; thiazolobenzothiazepine biscyanine III [42222-46-8], 114.deg., 1.95. The thiazolobenzothiazine was prep'd. by condensation of 2-methyl-6-(methylamino)benzothiazole-7-thiol [42222-47-9] with MeCH2COMe. The thiazolobenzothiazepine deriv. was prep'd. by reaction of 6-amino-2-methylbenzothiazole-7-thiol [42222-48-0] with mesityl oxide [141-79-7]. I-III were prep'd. by condensation of 1,3,3-trimethyl-2-(formylmethylene)indoline [84-83-3] with the corresponding bisquaternary salts. The 3 unsym. of which were synthesized. The pyrrolobenzothiazole deriv. was prep'd. by condensation of 2-methyl-6-hydrazinobenzothiazole [42222-49-1] with iso-PrCOMe and cyclization.

IT 42228-43-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
(prep'n. of)  
 RN 42228-43-3 CAPLUS  
 CN 8H-Pyrrolo[2,3-g]benzothiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6,8,8-tetramethyl-, diperchlorate (9CI) (CA INDEX NAME)

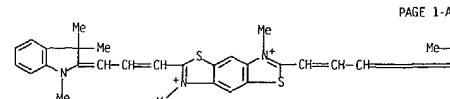
CM 1  
 CRN 48240-89-7  
 CMF C41 H46 N4 S

L7 ANSWER 44 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1973:525374 CAPLUS  
 DOCUMENT NUMBER: 79:125374  
 TITLE: Phenomenon of electron-vibrational interaction in intramolecular dimers in the case of a strong bond  
 AUTHOR(S): Ivanov, A. A.; Puretskii, A. A.; Peremgorov, V. I.  
 CORPORATE SOURCE: USSR  
 SOURCE: Optika i Spektroskopiya (1973), 35(3), 453-61  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE: For diagram(s), see printed CA Issue.  
 ABSTRACT:  
Absorption and luminescence spectra were given for benzothiazolium and 3H-indolium compds. (e.g., I, II) and their intramol. dimers (e.g., III, IV), and the degree of vibrational borrowing was analyzed. The results agreed with the theory of Fulton and Gouterman (1964).

IT 21834-79-7 21839-56-5 23104-60-1  
 23792-51-0 37005-92-8 41075-55-2  
 RL: PRP (Properties)  
 (absorption and luminescence spectra of, vibrational borrowing in relation to)  
 RN 21834-79-7 CAPLUS  
 CN Benzol[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-dimethyl- (9CI) (CA INDEX NAME)



RN 21839-56-5 CAPLUS  
 CN Benzol[1,2-d:4,3-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl- (9CI) (CA INDEX NAME)

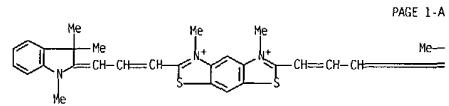


L7 ANSWER 44 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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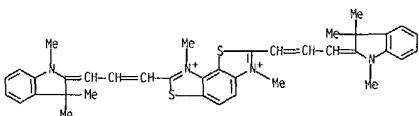
RN 23104-60-1 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl- (9CI) (CA INDEX NAME)



PAGE 1-B



RN 23792-51-0 CAPLUS  
 CN Benzo[1,2-d:3,4-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl- (9CI) (CA INDEX NAME)



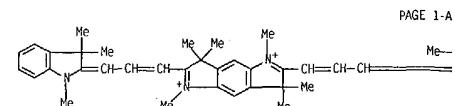
L7 ANSWER 44 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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L7 ANSWER 44 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

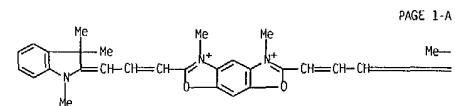
RN 37005-92-8 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl- (9CI) (CA INDEX NAME)



PAGE 1-B



RN 41075-55-2 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisoxazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl- (9CI) (CA INDEX NAME)



L7 ANSWER 45 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

L7 ANSWER 45 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1973:432693 CAPLUS  
 DOCUMENT NUMBER: 79:32693

TITLE: Induced optical activity of complexes of dyes with deoxyribonucleic acid

AUTHOR(S): Penmogorov, V. I.  
 CORPORATE SOURCE: USSR  
 SOURCE: Optika i Spektroskopiya (1973), 34(2), 298-304DOCUMENT TYPE: Journal  
 LANGUAGE: Russian

ABSTRACT:  
 The absorption spectrum of 1 dye [37005-92-8] in EtOH has only 1 max. corresponding to  $\lambda_{max}$  16.5 nm, 10.3 cm<sup>-1</sup> frequency. When deoxyribonucleic acid [9007-49-23 (DNA) is added, the absorption acquires a second max. at  $\lambda_{max}$  20 nm, 10.3 cm<sup>-1</sup>. This is caused by the interaction between I and DNA. Similar spectral changes are obstd. when DNA complexes with dye II [\*\*23792-51-0\*\*], dye III [23104-60-1], dye IV [41075-55-2] J. and dye V [41011-59-0]. An attempt to elucidate the nature of these complexes by the CD method was not successful. The CD of the dyes and of dye-DNA complexes were similar. This is due to the vibronic borrowing (Fulton, T.; Gouterman, N., 1964).

L7 ANSWER 46 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1973:85892 CAPLUS

DOCUMENT NUMBER: 78:85892

TITLE: Polymethine dyes prepared from isomeric benzothiazoles and containing one or two conjugated chromophores

AUTHOR(S): Mheux, Patrice; Lochon, Pierre; Neel, Jean  
CORPORATE SOURCE: Lab. Chim.-Phys. Macromol., Ec. Natl. Super. Ind.

Chim., Nancy, Fr.

SOURCE: Comptes Rendus des Seances de l'Academie des Sciences, Serie C: Sciences Chimiques (1972), 275(14), 749-52

CODEN: CHDCAQ; ISSN: 0567-6541

DOCUMENT TYPE: Journal

LANGUAGE: French

ABSTRACT:

Dyes contg. one or two p-Me2C6H4CH:CH or Q (n = 0, 1, 2; Z = H, Cl) groups were prepd. from benzothiazoles I, II, and III (X = X1 = N, Y = Y1 = Me), and their visible spectra were compared. Thus, I, II, and III (X = X1 = N, Y = Y1 = Me) were treated with Me2SO4 to give the corresponding monoquaternary or bisquaternary compds. which when condensed with p-Me2C6H4CH:CH gave dyes with one chromophore (Y = Me, Y1 = CH:CHC6H4Me2-p, X = N, X1 = N+Me MeSO4-) or two chromophores (Y = Y1 = CH:CHC6H4Me2-p, X = X1 = N+Me MeSO4-). Similar condensation of the mono- and bisquaternary compds. with 2-(methylthio)-, 2-(anilinoethyl)-, or 2-(anilinobutadienyl)benzothiazolines gave dyes with one or two Q groups. A bathochromic shift was obsd. when dyes prepd. from III (X = X1 = N, Y = Y1 = Me) (IV) and contg. one chromophore were compared with those from IV and contg. two chromophores. Dyes prepd. from I and II (X = X1 = N, Y = Y1 = Me) and contg. one chromophore showed only one peak; however, two peaks of unequal intensity appeared when two chromophores were present. The interaction between chromophores depends not only on conjugation in each chromophore but also on their orientation in relation to the plane of the mol.

IT 19375-14-5 19778-42-8 41062-87-7

41062-88-8 41062-89-9 41062-91-3

41062-95-7

RL: PRP (Properties)

(spectrum of)

RN 19375-14-5 CAPLUS

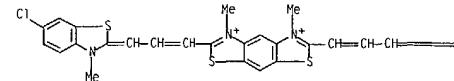
CHN Benz[1,2-d:5,4-d']bis[3-(6-chloro-3-methyl-2(3H)-benzothiazolylidene)-1-propenyl]-3,5-dimethyl-. bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

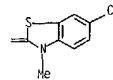
CRN 47834-68-4

CMF C32 H26 C12 N4 S4

L7 ANSWER 46 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
PAGE 1-A



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CM 2

CRN 21228-90-0

CMF C H3 04 S

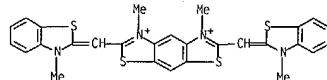
Me-O-SO3-

RN 19778-42-8 CAPLUS  
CHN Benz[1,2-d:5,4-d']bis[3-(6-chloro-3-methyl-2(3H)-benzothiazolylidene)-1-propenyl]-3,5-dimethyl-. bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

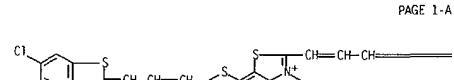
CRN 47777-09-3

CMF C28 H24 N4 S4

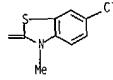


CM 2

L7 ANSWER 46 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
PAGE 1-A



PAGE 1-B



CM 2

CRN 21228-90-0

CMF C H3 04 S

Me-O-SO3-

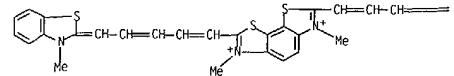
RN 41062-89-9 CAPLUS  
CHN Benz[1,2-d:4,3-d']bis[3-(6-chloro-3-methyl-2(3H)-benzothiazolylidene)-1-propenyl]-2,7-bis[5-(3-methyl-2(3H)-benzothiazolylidene)-1,3-pentadienyl]-. bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 48239-87-8

CMF C36 H32 N4 S4

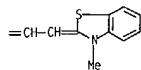
PAGE 1-A



L7 ANSWER 46 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

L7 ANSWER 46 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B



CM 2

CRN 21228-90-0  
CMF C H3 O4 S

CM 2

CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO3-

RN 41062-95-7 CAPLUS  
CN Benzo[1,2-d:5,4-d']bis[thiazolium, 3,5-dimethyl-2,6-bis[5-(3-methyl-2(3H)-benzothiazolylidene)-1,3-pentadienyl]-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 48239-94-7  
CMF C36 H32 N4 S4

Me-O-SO3-

RN 41062-91-3 CAPLUS  
CN Benzo[1,2-d:3,4-d']bis[thiazolium, 2,7-bis[3-(6-chloro-3-methyl-2(3H)-benzothiazolylidene)-1-propenyl]-3,8-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

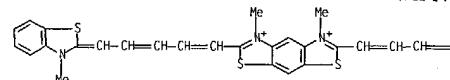
CM 1

CRN 48238-52-4  
CMF C32 H26 C12 N4 S4RN 41062-95-7 CAPLUS  
CN Benzo[1,2-d:5,4-d']bis[thiazolium, 3,5-dimethyl-2,6-bis[5-(3-methyl-2(3H)-benzothiazolylidene)-1,3-pentadienyl]-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

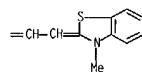
CM 1

CRN 48239-94-7  
CMF C36 H32 N4 S4

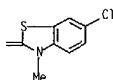
PAGE 1-A



PAGE 1-B



CM 2

CRN 21228-90-0  
CMF C H3 O4 S

L7 ANSWER 46 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

Me-O-SO3-

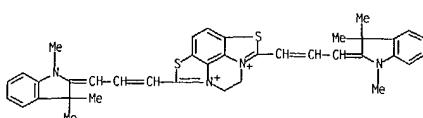
L7 ANSWER 47 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1973-71978 CAPLUS  
DOCUMENT NUMBER: 78:71978  
TITLE: 2,7-Dimethylbenzo[1,2-d:6,5-d']bis[thiazoles  
AUTHOR(S): Mikhailenko, F. A.  
CORPORATE SOURCE: USSR  
SOURCE: Khim. Geterotsikl. Soedin., Sb. 3 (1971). No. 3.  
208-11  
From: Ref. Zh., Khim. 1972, Abstr. No. 62h507  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.  
ABSTRACT:  
5-Chloro-2-methyl-4-nitrobenzothiazole, Na2S.10H2O, and H2O was refluxed 6 hr, and Ac2O added to give 16% 2,7-dimethylbenzo[1,2-d:6,5-d']bis[thiazole (I), which with Me2SO4 gave a salt (Ia) isolated as the bromide. I heated with BrCH2COH2Br 6 hr at 160° gave 7,8-dihydro-1,6-dimethylbis[thiazol[3,4,5-de:5',4',3'-ij]quinoxaline dibromide (II). Ia and 1,3,3-trimethyl-2-(formylmethylene)indoline (III) in Ac2O gave IV; II and III in Ac2O gave V (as the perchlorate). 5-Amino-2-methyl-4-nitrobenzothiazole diazotized at 0°, then treated with CuCl in HCl gave 67% 4,5-dichloro-2-methylbenzothiazole.

IT 40671-23-6P

RL: SPN (Synthetic preparation): PREP (Preparation)  
(prepn. of)RN 40671-23-6 CAPLUS  
CN Bis[thiazol[3,4,5-de:5',4',3'-ij]quinoxaline]dium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-4,5-dihydro-diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 48239-80-1  
CMF C38 H38 N4 S2

CM 2

CRN 14797-73-0  
CMF C1 O4

L7 ANSWER 47 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



L7 ANSWER 48 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1972:45019 CAPLUS

DOCUMENT NUMBER: 78:45019

TITLE: 81sdimethine dyes from isomeric benzobisthiazoles and 2-(dimethylamino)thiophene-, -furan-, and -selenophene-5-carboxaldehydes

AUTHOR(S): Mikhaleenko, F. A.; Shevchuk, L. I.; Shulezhko, A. A.

CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR

SOURCE: Zhurnal Organicheskoi Khimii (1972), 8(9), 1968-73

CODEN: ZORKAE; ISSN: 0514-7492

DOCUMENT TYPE: Journal

LANGUAGE: Russian

ABSTRACT:

The angles between the chromophores of the title dyes and some related compds. were detd. from their visible absorption spectra. Bis(thiacarbocyanine) I (R = R<sub>2</sub>, X = Br) (II) [38309-13-6] and bis(carbocyanine) I (R = R<sub>3</sub>, X = ClO<sub>4</sub>) (III) [38133-72-1] each have 2 absorption max. of approx. equal extinction at 514 and 632 nm and at 506 and 621 nm, resp. This indicates an angle between lines connecting the 2 N atoms of each chromophore close to 90.deg.; as the angle widens the absorption at higher wavelength increases and that at lower wavelength decreases; at 180.deg. (parallel chromophores) only the longer wavelength absorption remains. The thiophene deriv. (I, R = R<sub>1</sub>, Y = S, X = ClO<sub>4</sub>) (IV) [38133-73-2], the selenophene deriv. (I, R = R<sub>1</sub>, Y = Se, X = p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>) (V) [38133-74-3], and the furan deriv. (I, R = R<sub>1</sub>, Y = O, X = ClO<sub>4</sub>) (VI) [38133-75-4] have similar spectra, the peak at 637-42 nm having  $\epsilon$  2-3 times that of the peak at 520-8 nm, and both peaks being sharper than those of the phenyl analog (I, R = R<sub>1</sub>, Y = CH<sub>2</sub>CH, X = p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>) (VII) [38133-76-5]. In the bisthiazoloquinolazine series the angle between the chromophores narrows going from the carbocyanine (VIII, R = R<sub>3</sub>) to the dimethine (VIII, R = R<sub>1</sub>, Y = S, X = Br) (IX) [38133-77-6]. For the benzo[1,2-d:3,4-d']bisthiazole isomer system (X) the angle was  $\sim$ 120.deg. for all R. II-VII were prep'd. from 2,7-dimethyl-3,6-diethylbenzo[1,2-d:4,3-d']bisthiazolium bis(p-toluenesulfonate) [38133-78-7] by std. reactions. IX and the diperchlorate X (R = R<sub>1</sub>, Y = S, X = ClO<sub>4</sub>) [38133-79-8] were prep'd. similarly.

IT 38133-72-1P 38309-13-6P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

RN 38133-72-1 CAPLUS

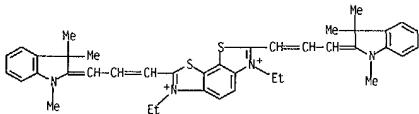
CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-diethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

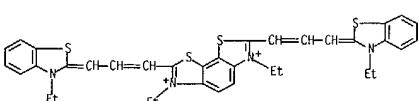
CRN 47862-94-2

CMF C40 H44 N4 S2

L7 ANSWER 48 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

CRN 14797-73-0  
CMF C1 O4RN 38309-13-6 CAPLUS  
CN Benzo[1,2-d:4,3-d']bisthiazolium, 3,6-diethyl-2,7-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, dibromide (9CI) (CA INDEX NAME)●2 Br<sup>-</sup>

L7 ANSWER 49 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1972:541467 CAPLUS

DOCUMENT NUMBER: 77:141467

TITLE: Cyanine dyes with two conjugated chromophores. XV. Effect of spatial interference on the absorption spectra of biscarbocyanines prepared from 2,7-dimethylbenzo[1,2-d:4,3-d']bisthiazole

AUTHOR(S): Fridman, S. G.; Kipriyanov, A. I.

CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR

SOURCE: Zhurnal Organicheskoi Khimii (1972), 8(6), 1289-95

CODEN: ZORKAE; ISSN: 0514-7492

DOCUMENT TYPE: Journal

LANGUAGE: Russian

ABSTRACT:

The substituents R-R<sub>2</sub> affect the angle between 2 chromophores in I dyes. The uv spectra of 3,6-dimethyl-1,2-bis[3-(1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]benzo[1,2-d:4,3-d']bisthiazolium diperchlorate (I, R = R<sub>1</sub> = R<sub>2</sub> = Me, X = ClO<sub>4</sub>) [19695-75-1] is shifted towards shorter wavelength in respect to (I, R = R<sub>1</sub> = Me, R<sub>2</sub> = H, X = ClO<sub>4</sub>) (II) and (I, R = Me, R<sub>1</sub> = R<sub>2</sub> = H, X = ClO<sub>4</sub>) (III), but it is nearly identical with the spectrum of (I, R = H, R<sub>1</sub> = R<sub>2</sub> = Me, X = p-toluenesulfonate) (IV). II and III were prep'd. by demethylating I (R = R<sub>1</sub> = R<sub>2</sub> = Me, X = iodine) with PdMe<sub>2</sub> to 2,7-bis[3-(1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]benzo[1,2-d:4,3-d']bisthiazole, which was then treated with p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>Me or HClO<sub>4</sub>, resp. IV was prep'd. by reaction of 2,7-bis(2-anilinovinyl)benzo[1,2-d:4,3-d']bisthiazolium di-p-toluenesulfonate with 2,3,3-trimethylindolene-HCl.

IT 38794-00-2P 38937-01-8P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

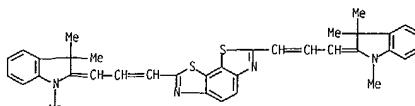
RN 38794-00-2 CAPLUS

CN Benzo[1,2-d:4,3-d']bisthiazole, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 47832-73-5

CMF C36 H34 N4 S2



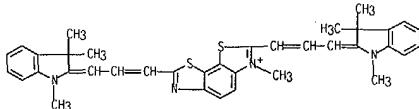
CM 2

L7 ANSWER 49 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CRN 7601-90-3  
 CMF C1 H 04



RN 38937-01-8 CAPLUS  
 Benzol[1,2-d:4,3-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-methyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 47844-86-0  
 CMF C37 H37 N4 S2

CM 2

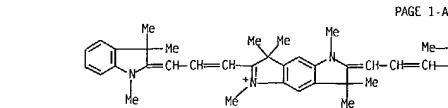
CRN 14797-73-0  
 CMF C1 O4

IT 21834-79-7  
 RL: PRP (Properties)  
 (spectrum of)  
 RN 21834-79-7 CAPLUS

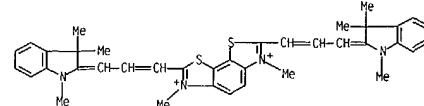
L7 ANSWER 50 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1972-507247 CAPLUS  
 DOCUMENT NUMBER: 77-107247  
 TITLE: Resonance stimulated Raman spectra in organic dye solutions  
 AUTHOR(S): Melishchuk, M. V.; Tikhonov, E. A.; Shpak, M. T.  
 CORPORATE SOURCE: USSR  
 SOURCE: Zhurnal Prikladnoi Spektroskopii (1972), 16(4), 642-8  
 DOCUMENT TYPE: CODEN: ZPSBAX; ISSN: 0514-7506  
 LANGUAGE: Journal  
 ABSTRACT: Russian  
 The resonance stimulated Raman scattering (obsd. besides the stimulated fluorescence) in solns. of polymethine dyes was studied during the excitation in an absorption band with a Q-modulated ruby laser (max. radiation power 100 MW/cm<sup>2</sup>) at 293 and 77 degree K. EtOH, glycerol, Me<sub>2</sub>CO, Me<sub>2</sub>SO, and an alc. mixt. were used as solvents. The longwave shift (4 cm<sup>-1</sup>) of the laser generation frequency was realized by heating the working element. The presence of relatively narrow intense lines and gaps in addn. to broad generation bands is characteristic of the stimulated radiation. The upper compd. states take part in the scattering. The presence of dye generation near the scattered radiation frequency is a necessary condition for the occurrence of scattering; the dye generation intensifies the appropriate Raman lines. The resonance stimulated Raman lines obsd. are caused by the scattering on nonexcited dye mol.

IT 38326-94-2  
 RL: PRP (Properties)  
 (Raman spectrum of, resonance stimulated)  
 RN 38326-94-2 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-(3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl)-3,7-dihydro-1,3,3,5,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrrolium-2(1H-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-, triperchlorate (9CI) (CA INDEX NAME)

CM 1

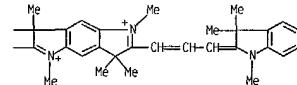
CRN 41011-59-0  
 CMF C63 H75 N6

L7 ANSWER 49 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CN Benzo[1,2-d:4,3-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3-methyl-, perchlorate (9CI) (CA INDEX NAME)



L7 ANSWER 50 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

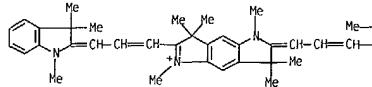
PAGE 1-B



CM 2

CRN 14797-73-0  
 CMF C1 O4

PAGE 1-A



L7 ANSWER 51 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1972-426892 CAPLUS

DOCUMENT NUMBER: 77:26892

TITLE: Spectral manifestation of electronic-vibrational interaction in the case of strong bonds

AUTHOR(S): Ivanov, A. A.; Puretskii, A. A.; Lukashin, A. V.; Permgorov, V. I.; Frank-Kamenetskii, M. D.

CORPORATE SOURCE: USSR

SOURCE: Optika i Spektroskopiya (1972), 32(3), 481-91

CODEN: OPSHAM; ISSN: 0030-4034

DOCUMENT TYPE: Journal

LANGUAGE: Russian

ABSTRACT: The effect of dimerization on electronic-vibrational coupling was considered theoretically for the case when the dimerization bond is strong and each monomer has 1 normal vibration coordinate. Cyanide dyes having the above characteristics were exmd. exptl. for the 1st time.

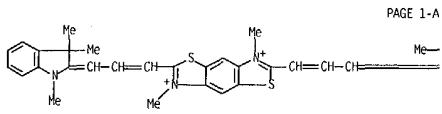
IT 21839-56-5 23104-60-1 23792-51-0

37005-92-8

RL: PRP (Properties)  
 (electronic spectrum of, dimerization effect on electronic-vibrational interaction in relation to)

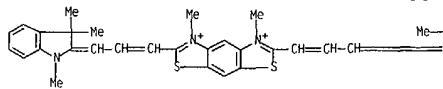
RN 21839-56-5 CAPLUS

CN Benzo[1,2-d:4,5-d']bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl- (9CI) (CA INDEX NAME)



L7 ANSWER 51 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CN Benzo[1,2-d:4,5-d']bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl- (9CI) (CA INDEX NAME)

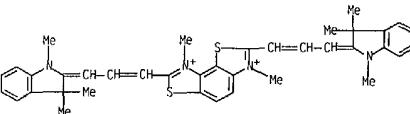
PAGE 1-A



PAGE 1-B



RN 21839-56-5 CAPLUS  
 CN Benzo[1,2-d:4,5-d']bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl- (9CI) (CA INDEX NAME)

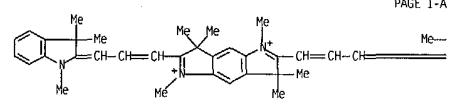


RN 37005-92-8 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl- (9CI) (CA INDEX NAME)

RN 23104-60-1 CAPLUS



L7 ANSWER 51 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



L7 ANSWER 52 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1972-60910 CAPLUS  
 DOCUMENT NUMBER: 76:60910  
 TITLE: Biscyanine dyes prepared from p-phenanthroline  
 AUTHOR(S): Mikhailenko, F. A.; Boguslavskaya, A. N.  
 CORPORATE SOURCE: Inst. Org. Khim. Kiev, USSR  
 SOURCE: Ukrainskii Khimicheskii Zhurnal (Russian Edition)  
 (1971), 37(10), 1031-4  
 CODEN: UKZHAU; ISSN: 0041-6045  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian

ABSTRACT: Refluxing 3,4,7,8-tetramethyl-4,7-phenanthroline Me sulfate salt with 1,3,3-trimethyl-2-(formylmethylen)indoline in Ac20 and ptn. with NaClO4 gave 3,8-bis(1,3,3-trimethyl-2-indolylidenepropenyl)-4,7-dimethyl-4,7-phenanthroline diperchlorate (I) [34087-05-3]. The 3-ethylbenzothiazole and 1-ethylquinoline analogs were prepd. similarly. Similarly, 3-(3-methyl-2-benzothiazolylidenepropenyl)-4,7-dimethyl-4,7-phenanthroline Me sulfate (II) [34087-06-4] was prepd. The uv spectrum of I contains absorption max. at 520 and 639 nm, while there is only 1 absorption max. at 586 nm in the spectrum of II. Similar double absorption spectra were obsd. in other symmetrically substituted dyes (I analogs) but not in the monosubstituted dyes.

IT 34087-05-3P 35202-11-0P 35519-84-7P

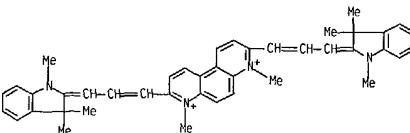
RL: SPN (Synthetic preparation): PREP (Preparation)  
 (prepn. of)

RN 34087-05-3 CAPLUS

CN 4,7-Phenanthroline, 3,8-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-4,7-dimethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 47862-81-7  
 CMF C42 H44 N4



CM 2

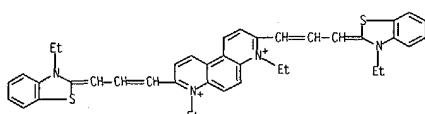
CRN 14797-73-0

L7 ANSWER 52 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
CMF C1 O4

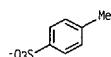


RN 35202-11-0 CAPLUS  
CN 4,7-Phenanthroline, 4,7-diethyl-3,8-bis[3-(3-ethyl-2(3H)-benzothiazolylidene)-1-propenyl]-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 47862-80-6  
CMF C40 H40 N4 S2

CM 2

CRN 16722-51-3  
CMF C7 H7 O3 S

RN 35519-84-7 CAPLUS  
CN 4,7-Phenanthroline, 4,7-diethyl-3,8-bis[3-(1-ethyl-2(1H)-quinolinylidene)-1-propenyl]-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

L7 ANSWER 53 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1971-489310 CAPLUS  
DOCUMENT NUMBER: 75-89310  
TITLE: Synthesis of a dye with three conjugated chromophores  
AUTHOR(S): Mikhailenko, F. A.; Boguslavskaya, A. N.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Khimiya Geterotsiklicheskikh Soedinenii (1971), 7(1), 137-8  
CODEN: KGSSAQ; ISSN: 0132-6244  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.  
ABSTRACT:  
Cyanine dye (I) is prep. in 20% yield by heating 2.46 g diquaternary salt (II) with 1.20 g 1,3,3-trimethyl-2-formylmethylenindoline in 10 ml AcOH, boiling with 50 ml Ac2O for 10 min. distg. solvent, adding 3.2 g diethoxymethylacetate and 30 ml pyridine, boiling for 3 hr. and working up. I is also obtained by reacting cyanine (III) with sulfonate p-O2NC6H4SO3Me and reacting the triquaternary salt produced with Ac2O.

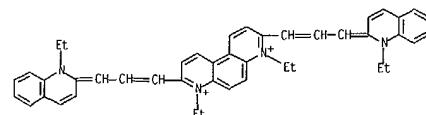
IT 33279-11-7  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

RN 33279-11-7 CAPLUS  
CN Benzol[1,2-b:4,5-b']dipyrrolium, 2-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-6-[3-[6-[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethylbenzo[1,2-b:4,5-b']dipyrrolium-2(1H-ylidene)-1-propenyl]-3,7-dihydro-1,3,3,5,7,7-hexamethyl-, tris(methyl sulfate) (9CI) (CA INDEX NAME)

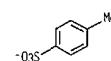
CM 1

CRN 41011-59-0  
CMF C63 H75 N6

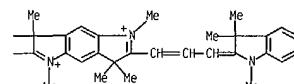
L7 ANSWER 52 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
CMF 1

CRN 47869-91-0  
CMF C44 H44 N4

CM 2

CRN 16722-51-3  
CMF C7 H7 O3 S

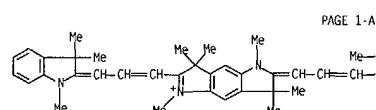
L7 ANSWER 53 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
PAGE 1-B



CM 2

CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO3-



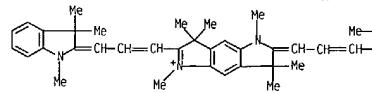
PAGE 1-A

L7 ANSWER 54 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1971-59012 CAPLUS  
 DOCUMENT NUMBER: 74-59012  
 TITLE: Nonlinear light absorption by liquid organic dye  
 solutions  
 AUTHOR(S): Aslanidi, E. B.; Gandel'man, I. L.; Tikhonov, E. A.;  
 Shpak, M. T.  
 CORPORATE SOURCE: Inst. Fiz., Kiev, USSR  
 SOURCE: Ukrainskii Fizicheskiy Zhurnal (Russian Edition)  
 (1970), 15(8), 1284-94  
 CODEN: UFIZAW; ISSN: 0503-1265  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 ABSTRACT:  
 Study of the nonlinear absorption of light by a group of solns. of liq. org. dyes and radicals of various chem. classes revealed a no. of different relations between the absorption coeff. and monochromatic excitation intensity: (a) a decrease decrease of the absorption coeff., (b) increase of the absorption coeff., (c) linear light absorption over a wide range of incident radiation, and (d) a decrease in absorption coeff. with a subsequent increase. The nonuniformities in the absorption bands for several dye samples were measured and probable reasons for the nonuniformities are discussed. Anal. of the obsd. nonlinearities carried out by a rate equation method for the populations of actual energy levels shows that the exptl. obtained relations may be due to the effective participation in the absorption of excited singlet and triplet mol. levels. According to the calcs., a new nonlinear effect, not yet obsd. exptl., is possible in absorption: an increase in absorption, then a decrease followed by another increase in the intensity. This effect is due to the resonance 2-level absorption of 2 photons.

IT 31038-47-8 31038-0  
 RL: PRP (Properties)  
 (optical absorption by, mechanism of nonlinear)  
 RN 31038-47-8 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2-[[1,3,5,7,7-hexamethyl-2-[(1,3,3-trimethyl-2-indolinylidene)propenyl]benzol[1,2-b:4,5-b']dipyrrolium-6(5H)-ylidene]propenyl]-1,3,3,5,7-hexamethyl-[(1,3,3-trimethyl-2-indolinylidene)propenyl]-, triiodide (8CI) (CA INDEX NAME)

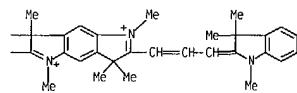
L7 ANSWER 54 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-A



• 3 I-

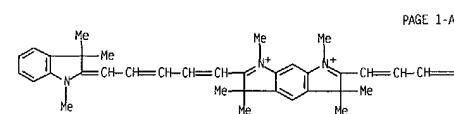
PAGE 1-B



RN 31038-49-0 CAPLUS  
 CN Benzo[1,2-b:4,5-b']dipyrrolium, 2-[[1,3,5,7,7-hexamethyl-2-[(1,3,3-trimethyl-2-indolinylidene)propenyl]benzol[1,2-b:4,5-b']dipyrrolium-6(5H)-ylidene]propenyl]-1,3,3,5,7-hexamethyl-[(1,3,3-trimethyl-2-indolinylidene)propenyl]-, dipерхлорат (9CI) (CA INDEX NAME)

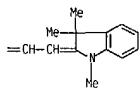
CM 1

CRN 47884-11-7  
 CMF C48 H56 N4



L7 ANSWER 54 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B



CM 2

CRN 14797-73-0  
 CMF C1 04



L7 ANSWER 55 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1970-122953 CAPLUS  
 DOCUMENT NUMBER: 72-122953  
 TITLE: Benzo[1,2-d:5,4-d']bisthiazole polymethine derivatives as photographic sensitizers  
 INVENTOR(S): Lochon, Pierre; Meheux, Patrice; Neel, Jean  
 PATENT ASSIGNEE(S): Centre National de la Recherche Scientifique  
 SOURCE: Fr., 6 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 1545577	-----	1968115	FR	19670317
DE 1670510	-----		DE	

GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
 1. II. and compds. of the formula III, where, for example, R = Cl and R1 = R2 = H, are prep'd. and can be used as photographic sensitizers. Thus, a mixt. of 945 mg 2,3,5,6-tetramethylbenzo[1,2-d:5,4-d']bisthiazolium bis(Me sulfate), 716 mg p-Me2NC6H4CHO, and 20 ml EtOH is refluxed to give 60% I. decompd. >300.degree.. lambda.maxMeOH 535 nm.

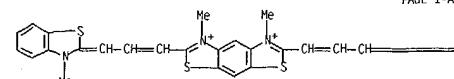
IT 19375-13-4P 19375-14-5P 19375-15-6P  
 19543-68-1P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (prepn. of)

CN 19375-13-4 CAPLUS  
 Benzo[1,2-d:5,4-d']bisthiazolium, 3,5-dimethyl-2,6-bis[3-(3-methyl-2-benzothiazolinylidene)propenyl]-, bis(methyl sulfate) (8CI) (CA INDEX NAME)

CM 1

CRN 21834-78-6  
 CMF C32 H28 N4 S4

PAGE 1-A



L7 ANSWER 55 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-B



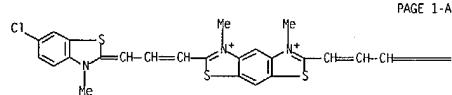
CM 2

CRN 21228-90-0  
CMF C H3 O4 S

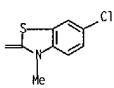
Me-O-SO3-

RN 19375-14-5 CAPLUS  
CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(6-chloro-3-methyl-2(3H)-benzothiazolylidene)-1-propenyl]-3,5-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 47834-68-4  
CMF C32 H26 Cl2 N4 S4

PAGE 1-A

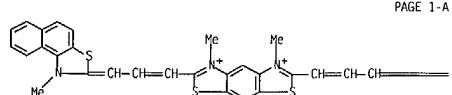


PAGE 1-B

L7 ANSWER 55 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

RN 19543-68-1 CAPLUS  
CN Benzo[1,2-d:5,4-d']bisthiazolium, 3,5-dimethyl-2,6-bis[3-(1-methylnaphtho[1,2-d]thiazol-2(1H)-ylidene)-1-propenyl]-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 47869-69-2  
CMF C40 H32 N4 S4

PAGE 1-A



PAGE 1-B

CM 2

CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO3-

L7 ANSWER 55 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

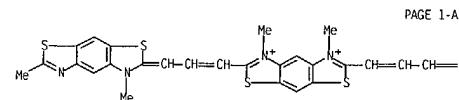
CM 2

CRN 21228-90-0  
CMF C H3 O4 S

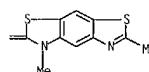
Me-O-SO3-

RN 19375-15-6 CAPLUS  
CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(3,6-dimethylbenzo[1,2-d:5,4-d']bisthiazol-2(3H)-ylidene)propenyl]-3,5-dimethyl-, bis(methyl sulfate) (8CI) (CA INDEX NAME)

CM 1

CRN 47870-73-5  
CMF C36 H30 N6 S6

PAGE 1-A



PAGE 1-B

CM 2

CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO3-

L7 ANSWER 55 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1970-45004 CAPLUS  
DOCUMENT NUMBER: 72-45004  
TITLE: Cyanine dyes with two conjugated chromophores. X  
AUTHOR(S): Mikhailenko, F. A.; Boguslavskaya, A. N.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Ukrainskii Khimicheskii Zhurnal (Russian Edition)  
(1969). 35(9), 943-7

CODEN: UKZHAU; ISSN: 0041-6045

DOCUMENT TYPE: Journal

LANGUAGE: Russian

GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:

2,5,1,4-(AcNH)2C6H2(OAc)2 heated at 300.degree. until evolution of HOAc ceased and the residue distd. in vacuum yielded 82% 2,6-dimethylbenzo[1,2-d:5,4-d']bisoxazole (I), m. 191.degree. (C6H6). 2,6-Dimethylbenzo[1,2-d:5,4-d']bisoxazole (II), m. 143 degrees, was prep'd. from 4,6,1,3-(AcNH)2C6H2(OAc)2. I and II were converted to monoquaternary salts by heating with Me2SO4 in PhNO2 at 120.degree.. Heating to 140.degree. with excess Me2SO4 in xylene gave the bisquaternary salts. From these quaternary salts the following III were prep'd. by standard methods (Y. Z. R., lambda max in nm (epsilon, times 10-5), and m.p. given): NMe, O, C104, O, 470 (D) and 602 (3,40), >300.degree. (MeOH); NMe, O, MeSO4, 4-Me2NC6H4, 594 (1.85), >300.degree.; O, NMe, C104, O, 468 (1.37) and 592 (2.82), >300.degree. (Me-NO2-HOAc); O, NMe, MeSO4, 4-Me2NC6H4, 482 (0.40), and 588 (2.16), >300.degree.; and IV (same data given): NMe, O, C104, O, 520 (1.23), 269.degree. (MeOH); NMe, O, MeSO4, 4-Me2NC6H4, 512 (0.79), 273.degree. (MeNO2); O, NMe, MeSO4, O, 520 (1.23), 206.degree. (H2O); O, NMe, C104, 4-Me2NC6H4, 506 (0.80), >300.degree. (MeNO2-HOAc). The increased ratio of epsilon at the lower lambda to epsilon at the higher lambda for biscyanines based on II is attributed as before to a smaller angle between these chromophores than is present in those dyes related to I.

IT 25470-81-9P 25470-83-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prep, o)

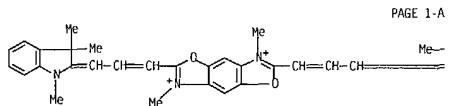
RN 25470-81-9 CAPLUS

CN Benzo[1,2-d:4,5-d']bisoxazolium, 3,7-dimethyl-2,6-bis[3-(3,3,3-trimethyl-2-indolinylidene)propenyl]-, diperchlorate (8CI) (CA INDEX NAME)

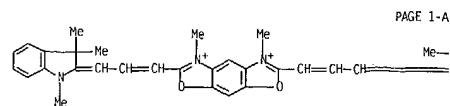
CM 1

CRN 47853-12-3  
CMF C38 H40 N4 O2

L7 ANSWER 56 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



L7 ANSWER 56 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

CRN 14797-73-0  
CMF C1 O4

CM 2

CRN 14797-73-0  
CMF C1 O4

RN 25470-83-1 CAPLUS  
CN Benzo[1,2-d:5,4-d']bisoxazolium, 3,5-dimethyl-2,6-bis[3-(1,3,3-trimethyl-2-indolinylidene)propenyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 41075-55-2  
CMF C38 H40 N4 O2

L7 ANSWER 57 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1970-16935 CAPLUS  
DOCUMENT NUMBER: 72:16935  
TITLE: Electron spectra of biscyanines  
AUTHOR(S): Permogorov, V. I.; Dyadyusha, G. G.; Mikhailenko, F. A.; Kipriyanov, A. I.  
CORPORATE SOURCE: Vses. Nauch.-Issled. Inst. Genet. Selekts. Mikroorg., Moscow, USSR  
SOURCE: Doklady Akademii Nauk SSSR (1969), 188(5), 1098-101  
[Phys Chem]  
CODEN: DANKAS; ISSN: 0002-3264  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.  
ABSTRACT:

The absorption and luminescence spectra were reported for biscyanines of the types shown, in EtOH. These were supplemented by ORD spectra and circular dichroism plots for the complexes of these substances with DNA. The absorption spectra of all 3 types of dyes taken best at 120°K for better resolution, showed 4 max., while luminescence spectra had 2 max. and had mirror image relation with 2 of the max. in the absorption spectra. Hence, the 1st 2 max. are vibrational transitions of the principal electronic band and the remaining 2 bands are caused by a new electronic transition. The luminescence excitation spectra of these dyes are quite coincident with their absorption spectra. Excitation with polarized light generated luminescence that was distinctly polarized also; the change in the sign of polarization showed that 2 electronic transitions are involved. The mol. conformation does not change during the life of the excited state. Adsorption of the dyes on DNA resulted in asymmetrization of total structure and generation of optical activity as expected from general theory of optical activity dating back to Kuhn.

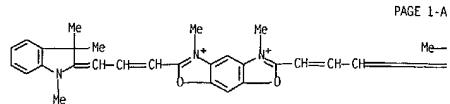
IT 25470-83-1 25479-25-8 25504-42-1

RL: PRP (Properties)  
(optical properties of)

RN 25470-83-1 CAPLUS

CN Benzo[1,2-d:5,4-d']bisoxazolium, 3,5-dimethyl-2,6-bis[3-(1,3,3-trimethyl-2-indolinylidene)propenyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 41075-55-2  
CMF C38 H40 N4 O2

L7 ANSWER 57 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

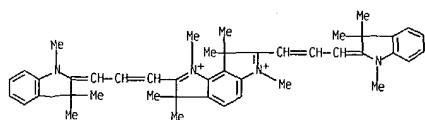


CM 2

CRN 14797-73-0  
CMF C1 O4

RN 25479-25-8 CAPLUS  
CN Benzo[1,2-b:3,4-b']dipyrrrolium, 3,8-dihydro-1,3,3,6,8,8-hexamethyl-2,7-bis[3-(1,3,3-trimethyl-2-indolinylidene)propenyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47869-38-5  
CMF C44 H52 N4

CM 2

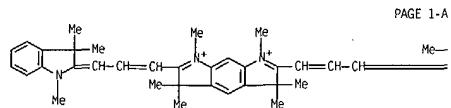
CRN 14797-73-0  
CMF C1 O4

L7 ANSWER 57 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 25504-42-1 CAPLUS  
 Benzo[1,2-b:5,4-b']dipyrrolonium, 3,5-dihydro-1,3,3,5,5,7-hexamethyl-2,6-bis[3-(1,3,3-trimethyl-2-indolinylidene)propenyl]-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 47870-37-1  
CMF C44 H52 N4

PAGE 1-B



CM 2

CRN 14797-73-0  
CMF C1 O4

L7 ANSWER 58 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1969-471891 CAPLUS  
DOCUMENT NUMBER: 71:71891

TITLE: Absorption spectra of organic dyes containing two conjugated chromophores in a molecule  
 AUTHOR(S): Kiprianov, A. I.; Dyadyusha, G. G.  
 CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
 SOURCE: Ukrainski Khimicheskii Zhurnal (Russian Edition) (1969), 35(6), 608-15  
 CODEN: UKZHAU; ISSN: 0041-6045

DOCUMENT TYPE: Journal

LANGUAGE: Russian

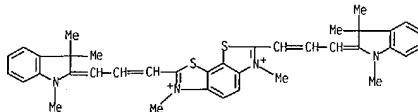
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
 It is argued on a qual. basis that for 2 conjugated chromophores connected in a straight line, e.g. I, an electronic vibration setting up 2 dipoles (+ -)(+ -) would correspond to the long-wavelength, low-energy, absorption of the combined chromophores. It also would produce a strong dipole and should have a large absorption coeff. On the other hand, a vibration in which the dipoles are opposed (+ -)(+ -) would correspond to the high-energy transition and the absorption band should be weak. The conclusions would be directly reversed if the conjugated chromophores were parallel as they would be if joined by an o-phenylene radial, e.g., II. Then the long-wavelength band should result in 2 parallel, but opposed, dipoles and the absorption should be weak. A math. relation is given (but not derived) for the relation between the angle formed by the 2 chromophores and the absorption max. and intensities of the dye and of the 2 corresponding dyes which represent the single chromophores. Applied to a group of cyanines, the agreement between the calcd. angle and that measured in models is stated to be satisfactory.

IT 21834-79-7 21839-56-5 23104-60-1  
23792-51-0RL: PRP (Properties)  
(spectrum of mol. structure in relation to visible)

RN 21834-79-7 CAPLUS

CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl- (9CI) (CA INDEX NAME)



RN 21839-56-5 CAPLUS  
 CN Benzo[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl- (9CI) (CA INDEX NAME)

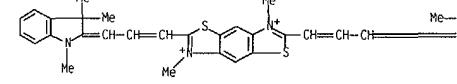
L7 ANSWER 57 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



L7 ANSWER 58 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

L7 ANSWER 58 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

PAGE 1-A

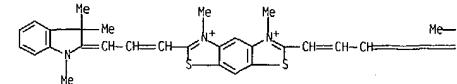


PAGE 1-B



RN 23104-60-1 CAPLUS  
 CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl- (9CI) (CA INDEX NAME)

PAGE 1-A

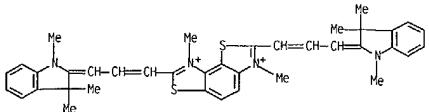


PAGE 1-B



RN 23792-51-0 CAPLUS  
 CN Benzo[1,2-d:3,4-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 58 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

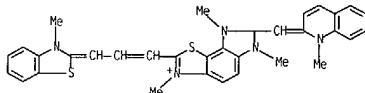


L7 ANSWER 59 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1969:404498 CAPLUS  
 DOCUMENT NUMBER: 71:4498  
 TITLE: Cyanine dyes with two conjugated chromophores. XI  
 AUTHOR(S): Fridman, S. G.; Kipriyanov, A. I.  
 CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
 SOURCE: Zhurnal Organicheskoi Khimii (1969), 5(2), 373-6  
 CODEN: ZORKAE; ISSN: 0514-7492  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
 The absorption spectra of the following cyanine dyes contg. 1 or 2 conjugated chromophores were studied (general formula, R, X, Y, and Z given): I, -S-NMe<sub>2</sub>; I, -S-NMe<sub>2</sub>; II, Et, S-NMe<sub>2</sub>; II, Me, NMe<sub>2</sub>; S, S; II, Me, S-NMe<sub>2</sub>; II, Me, NMe<sub>2</sub>; III, Et, S-NMe<sub>2</sub>; III, Me, NMe<sub>2</sub>; S, S; III, Me, S-NMe<sub>2</sub>; III, Me, NMe<sub>2</sub>; III, Me, NMe<sub>2</sub>; CM2. There was a strong interaction between 2 conjugated chromophores if the light quanta absorbed by each sep. chromophore were similar. In such cases 2 absorption bands were present in the spectrum.

IT 23215-31-8P 23215-32-9P 23284-81-3P  
 23284-82-4P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (prep'n, of)  
 RN 23215-31-8 CAPLUS  
 CN 8H-Imidazo[4,5-g]benzothiazolium, 3,6,8-trimethyl-2-[3-(3-methyl-2(1H)-benzothiazolylidene)propenyl]-7-[(1-methyl-2(1H)-quinolylidene)methyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47817-26-5  
 CMF C33 H31 N5 S2

\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

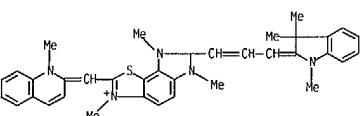
CM 2

CRN 14797-73-0

L7 ANSWER 59 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CMF C1 O4

RN 23215-32-9 CAPLUS  
 CN 8H-Imidazo[4,5-g]benzothiazolium, 3,6,8-trimethyl-2-[(1-methyl-2(1H)-quinolylidene)methyl]-7-[3-(1,3,3-trimethyl-2-indolinylidene)propenyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47832-19-9  
 CMF C36 H37 N5 S

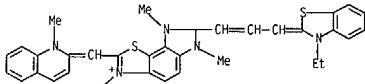
\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

CM 2

CRN 14797-73-0  
 CMF C1 O4

RN 23284-81-3 CAPLUS  
 CN 8H-Imidazo[4,5-g]benzothiazolium, 7-[3-(3-ethyl-2-benzothiazolylidene)propenyl]-3,6,8-trimethyl-2-[(1-methyl-2(1H)-quinolylidene)methyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47825-55-8  
 CMF C1 O4L7 ANSWER 59 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CMF C34 H33 N5 S2

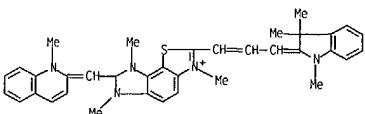
\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

CM 2

CRN 14797-73-0  
 CMF C1 O4

RN 23284-82-4 CAPLUS  
 CN 8H-Imidazo[4,5-g]benzothiazolium, 3,6,8-trimethyl-7-[(1-methyl-2(1H)-quinolylidene)methyl]-2-[3-(1,3,3-trimethyl-2-indolinylidene)propenyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47831-75-4  
 CMF C36 H37 N5 S

\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

CM 2

CRN 14797-73-0  
 CMF C1 O4

L7 ANSWER 59 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

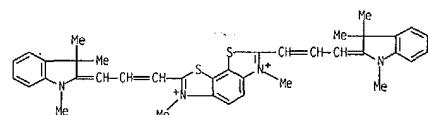


L7 ANSWER 60 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1969-79113 CAPLUS  
 DOCUMENT NUMBER: 70-79113  
 TITLE: Cyanine dyes with two conjugated chromophores  
 AUTHOR(S): Kipriyanov, A. I.  
 CORPORATE SOURCE: Inst. Org. Chem., Kiev, USSR  
 SOURCE: Industrie Chimique Belge (1967), 32(Spec. No.), 100-2  
 CODEN: ICBEA; ISSN: 0019-9052

DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

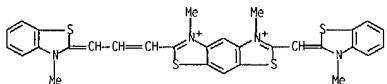
ABSTRACT:  
 The absorption spectra of cyanine dyes from isomeric benzobisthiazoles were studied, each mol. contg. 2 conjugated chromophores, e.g. I. The absorption curve of each biscyanine was compared with that of the corresponding cyanine with 1 chromophore. The absorption spectra of biscyanines with 2 polymethine chromophores of equal length always had 2 absorption bands: one 1 at longer  $\lambda$ , than the parent dye, the other at shorter  $\lambda$ , i.e., the absorption band of the parent dye was split into 2 bands in the spectrum of the biscyanine. Further, the intensity of this band was dependent on the angle between the 2 chromophores. These observations are discussed from the standpoint of electronic spectral theory.

IT 21834-79-7 21839-55-4 21839-56-5  
 23104-60-1  
 RL: PRP (Properties)  
 (spectrum of, visible)  
 RN 21834-79-7 CAPLUS  
 CN Benzol[1,2-d:4,3-d']bisthiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-dimethyl- (9CI) (CA INDEX NAME)



RN 21839-55-4 CAPLUS  
 CN Benzol[1,2-d:5,4-d']bisthiazolium, 3,5-dimethyl-2-[(3-methyl-2-benzothiazolinylidene)methyl]-6-[3-(3-methyl-2-benzothiazolinylidene)propenyl]- (8CI) (CA INDEX NAME)

L7 ANSWER 60 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



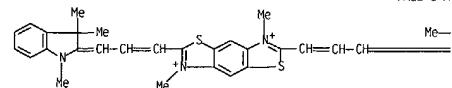
RN 21839-56-5 CAPLUS  
 CN Benzol[1,2-d:4,5-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,7-dimethyl- (9CI) (CA INDEX NAME)

L7 ANSWER 60 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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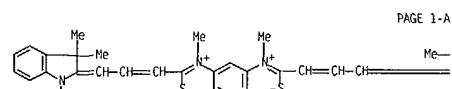
PAGE 1-A



PAGE 1-B



RN 23104-60-1 CAPLUS  
 CN Benzol[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl- (9CI) (CA INDEX NAME)



L7 ANSWER 61 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1968-452920 CAPLUS  
DOCUMENT NUMBER: 69:52920

TITLE: Cyanine dyes with two conjugated chromophores. IV  
AUTHOR(S): Kipriyanov, A. I.; Mushkalo, I. L.; Mikhailenko, F. A.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Zhurnal Organicheskoi Khimii (1967), 3(11), 2041-7  
CODEN: ZOKRAE; ISSN: 0514-7492  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
In order to further investigate the splitting of the absorption bands of cyanine dyes contg. two conjugated chromophores (A. I. Kipriyanov and I. L. Mushkalo (1965)), several cyanine dyes derived from 2,6-dimethylbenzo[1,2-d:5,4-d']bisthiazole (I) and from 2,6-dimethylbenzo[1,2-d:4,5-d']bisthiazole (II) were prep'd. 1 m. 147.degree. (petroleum ether). prep'd. according to the method of C. Finzi and G. Grandolini (1959). In 58% yield, was converted in 100% yield to the methiodide (III), m. 259-61.degree., and in 49% yield to the bis(Me methosulfate) (IV), m. 243-5.degree. III treated with 2-(methylmercapto)benzothiazole (V) in abs. EtOH in the presence of Et3N gave 38% [3,6-dimethylbenzo[1,2-d:4,5-d']bisthiazole-2][3-methylbenzothiazole-2]monomethinecyanine iodide (VI), m. 305-7.degree. (decompn.) (MeNO2). lambda.max. 556 m.m.u., and III treated with 1,3,3-trimethyl-2-(formylmethylene)indoline (VII) in AcOH gave 48% [3,6-dimethylbenzo[1,2-d:5,4-d']bisthiazole-2][1,3,3-trimethylindoline-2]trimethinecyanine iodide, m. 230-5.degree. (decompn.) (MeOH). lambda.max. 556 m.m.u. Analogously, III and 4-Me2NC6H4CHO (VIII) gave 76% 2-[p-(dimethylamino)styryl]-6-methylbenzo[1,2-d:5,4-d']bisthiazole methiodide, m. 290.degree. (decompn.). lambda.max. 542 m.m.u., and III and 3-ethyl-2-(formylmethylene)benzothiazoline (IX) gave 29% [3,6-dimethylbenzo[1,2-d:5,4-d']bisthiazole-2][3-ethylbenzothiazole-2]trimethinecyanine iodide, m. 260-5.degree. (decompn.) (EtOH). lambda.max. 565 m.m.u.. Under the same conditions, IV and VIII gave 81% 3,5-dimethyl-2,6-bis(p-dimethylamino)styryl]benzo[1,2-d:5,4-d']bisthiazole, m. >300.degree., lambda.max. 626 m.m.u.. III (0.24 g.) refluxed for 15 min. with 0.31 g.V-Me2SO4 and 0.2 g. Et3N in 3 cc. Ac20 and the ppt. washed with boiling EtOH and Et2O gave 29% biscyanine RI:CHR2CH:R1:2MeSO4- (X), m. >350.degree., gamma.max. 481 and 402 m.m.u.. IV (0.24 g.) added to a boiling soln. of 0.41 g. VII in 3 cc. Ac20 and the mixt. refluxed for 50 min. yielded 44% biscyanine R3:CHCR2CH:CHC:R3:2MeSO4- (XI), m. 330.degree. (decompn.) (EtOH). lambda.max. 631 and 510 m.m.u.. VI (0.3 g.) heated for 30 min. at 130-40.degree. with 1.8 cc. Me2SO4 and excess Me2SO4 washed out with Et2O gave nearly 100% biscyanine salt RI:CHR2Me:2MeSO4- (XII), m. >350.degree.. XII (0.065 g.) and 0.027 g. IX in 1 cc. pyridine boiled and treated with several drops Ac20, refluxed for 40 min., and the ppt. filtered and washed with hot H2O. EtOH, and Et2O yielded 34% biscyanine RI:CHR2CH:CHC:R1:2MeSO4- (XIII), m. 320.degree. (decompn.). lambda.max. 590 and 440 m.m.u.. II, Me2SO4 (XIV) was obtained by heating an equimolar mixt. of II and Me2SO4 for 3 hrs. at

L7 ANSWER 61 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
130.degree.. XIV heated with V in pyridine gave 67% [3,6-dimethylbenzo[1,2-d:4,5-d']bisthiazole-2][3-ethylbenzothiazole-2]monomethinecyanine methosulfate, m. 285.degree. (decompn.) (MeOH). lambda.max. 432 m.m.u.. XIV heated with VII in Ac20, impurities (monocyanine) extd. with CHCl3, and the product treated with KBr yielded 70% [3,6-dimethylbenzo[1,2-d:4,5-d']bisthiazole-2][1,3,3-trimethylindoline-2]trimethinecyanine bromide, m. 279.degree. (decompn.). lambda.max. 556 m.m.u.. II, 2Me2SO4 (0.12 g.) refluxed for 3 hrs. with 0.2 g. VII in 10 cc. Ac20 gave 79% biscyanine R3:CHR2CH:CHC:R3:2MeSO4- (XV), m. >350.degree., lambda.max. 485 (457) m.m.u.. Biscyanine R1:CHR2CH:R1:2MeSO4- (XVI), lambda.max. 485 (457) m.m.u., was prep'd. analogously. Splitting of the absorption band is found in X, XI, and XIII, the short wave-length peak being one-tenth as strong as the long wave-length one. On the contrary, only a very weak short wave-length absorption peak can be observed in the case of biscyanines XV and XVI. The phenomenon is possibly due to the specific sym. of these mols.

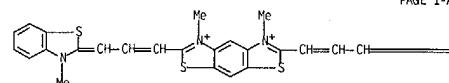
IT 19375-13-4P 19695-86-4P 19695-88-6P  
19695-89-7P 19695-90-0P 19778-42-8P  
RL SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

RN 19375-13-4 CAPLUS  
CN Benzo[1,2-d:5,4-d']bisthiazolium, 3,5-dimethyl-2,6-bis[3-(3-methyl-2-benzothiazolinylidene)propenyl]-, bis(methyl sulfate) (8CI) (CA INDEX NAME)

CM 1

CRN 21834-78-6  
CMF C32 H28 N4 S4

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L7 ANSWER 61 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 2

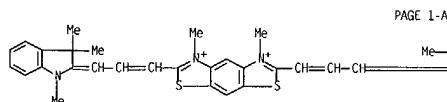
CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO3-

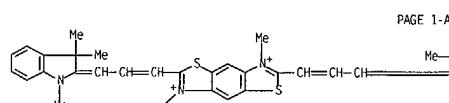
RN 19695-86-4 CAPLUS  
CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,5-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 23104-60-1  
CMF C38 H40 N4 S2



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PAGE 1-B



CM 2

CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO3-

CH 2  
CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO3-

RN 19695-89-7 CAPLUS  
CN Benzo[1,2-d:4,5-d']bisthiazolium, 2,6-bis[(3-ethyl-2-benzothiazolinylidene)methyl]-3,7-dimethyl-, bis(methyl sulfate) (8CI) (CA INDEX NAME)

CM 1

CRN 47802-13-1  
CMF C30 H28 N4 S4



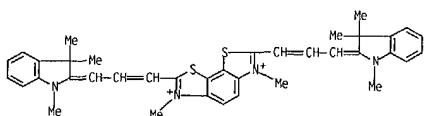
L7 ANSWER 62 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CRN 21228-90-0  
 CMF C H3 O4 S

Me-O-SO<sub>3</sub><sup>-</sup>

RN 19695-75-1 CAPLUS  
 Benzo[1,2-d:4,3-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,6-dimethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 21834-79-7  
 CMF C38 H40 N4 S2



CM 2

CRN 14797-73-0  
 CMF C1 O4

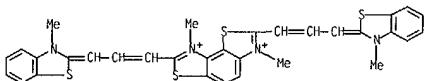


RN 19695-76-2 CAPLUS  
 Benzo[1,2-d:4,3-d']bis[thiazolium, 3,6-dimethyl-2,7-bis[5-(1,3,3-trimethyl-2-indolinylidene)-1,3-pentadienyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47869-97-6

L7 ANSWER 62 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



CM 2

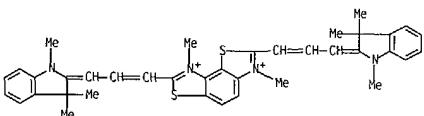
CRN 14797-73-0  
 CMF C1 O4



RN 19695-81-9 CAPLUS  
 Benzo[1,2-d:4,3-d']bis[thiazolium, 2,7-bis[3-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1-propenyl]-3,8-dimethyl-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 23792-51-0  
 CMF C38 H40 N4 S2

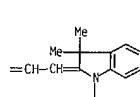
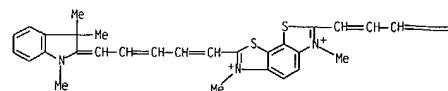


CM 2

CRN 14797-73-0  
 CMF C1 O4

L7 ANSWER 62 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CRN C42 H44 N4 S2

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CM 2

CRN 14797-73-0  
 CMF C1 O4



RN 19695-80-8 CAPLUS  
 Benzo[1,2-d:3,4-d']bis[thiazolium, 3,6-dimethyl-2,7-bis[3-(3-methyl-2-benzothiazolinylidene)propenyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47817-35-6  
 CMF C32 H28 N4 S4

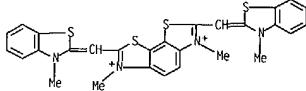
L7 ANSWER 62 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)



RN 19695-82-0 CAPLUS  
 Benzo[1,2-d:4,3-d']bis[thiazolium, 3,6-dimethyl-2,7-bis[3-(3-methyl-2-benzothiazolinylidene)methyl]-, di-p-toluenesulfonate (8CI) (CA INDEX NAME)

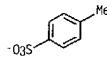
CM 1

CRN 48232-80-0  
 CMF C28 H24 N4 S4



CM 2

CRN 16722-51-3  
 CMF C7 H7 O3 S



L7 ANSWER 63 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1968-452059 CAPLUS

DOCUMENT NUMBER: 69-52059

TITLE: Reactivity of the 2- and 6-methyl substituents in the bis(quaternary salts) of 2,6-dimethylbenzo[1,2:5,4]bisthiazole. Synthesis of derivatives with two conjugated polymethine groups

AUTHOR(S): Lochon, Pierre; Meheux, Patrice; Neel, Jean  
CORPORATE SOURCE: Ecole Nat. Super. Ind. Chim., Nancy, Fr.  
SOURCE: Bulletin de la Societe Chimique de France (1968). (3). 1093-8

DOCUMENT TYPE: BSCFAS: ISSN: 0037-8968

Journal

LANGUAGE: French

GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:

A soln. of 12 g. 6-chlorobenzothiazole in 25 ml. trichloroethylene was heated to boiling and mixed with 10 g. Me<sub>2</sub>SO<sub>4</sub> to give 75% 2,3-dimethyl-6-chlorobenzothiazolium methyl sulfate (I). m. 170, degree.. Similarly prep'd. was 2,3-dimethyl- $\beta$ -naphthothiazolium methyl sulfate, m. 170, degree.. A soln. of 2.6 g. bis(p-chlorophenyl)formamidine and 3.1 g. I in Ac<sub>2</sub>O at 80, degree. was kept 2 hrs. at 80, degree. to give 80% 2-(p-chlorophenyl)iminoethyldene)-2-chloro-3-methylbenzothiazoline and 3.1 g. I in Ac<sub>2</sub>O at 80, degree. was kept 2 hrs. at 80, degree. to give 80% 2-(p-chlorophenyl)iminoethyldene)-2,3-dimethylbenzothiazoline. m. 167, degree.. Similarly prep'd. were 2-(p-chlorophenyl)iminoethyldene)-3-methyl- $\beta$ -naphthothiazoline, m. 221, degree.. and 2-(p-chlorophenyl)iminoethyldene)-3,6-dimethylbenzothiazoline[1,2:5,4]thiazole (II), m. 244, degree.. A soln. of 0.002 mole of the methyl sulfate of II in 15 ml. alc. was mixed with a slight excess of p-Me<sub>2</sub>C<sub>6</sub>H<sub>4</sub>CHO and boiled 1 hr. to give 50% III (R = CH:CHC<sub>6</sub>H<sub>4</sub>NH<sub>2</sub>-p, R<sub>1</sub> = Me, n = 1, X = Me<sub>2</sub>SO<sub>4</sub>), m. 280, degree.. Similarly prep'd. were III (R = R<sub>1</sub> = CH:CHC<sub>6</sub>H<sub>4</sub>NH<sub>2</sub>-p, n = 2, X = Me<sub>2</sub>SO<sub>4</sub>), m. 325, degree.. III (R = R<sub>1</sub> = CH:CHC<sub>6</sub>H<sub>4</sub>Cl-p, R<sub>1</sub> = Me, n = 1, X = Me<sub>2</sub>SO<sub>4</sub>), m. >350, degree.. and III (R = R<sub>1</sub> = CH:CHC<sub>6</sub>H<sub>4</sub>Cl-p, n = 2, X = Me<sub>2</sub>SO<sub>4</sub>), m. 325, degree.. A soln. of 2 g. of the bis(methyl sulfate) (IV) of 2,3,6-tetramethylbenzo[1,2:5,4]bisthiazole in 5 ml. Ac<sub>2</sub>O at 70, degree. was mixed with 0.02 mole bis(p-chlorophenyl)formamidine in 4 ml. Ac<sub>2</sub>O and the mixt. was maintained 2 hrs. at 70, degree. to give 45% 2,6-bis-(p-chlorophenyl)iminoethyldene)-3,5-dimethylbenzo[1,2:5,4]bis-thiazoline, m. 290, degree.. A soln. of 0.002 mole IV in a min. of HOAc was mixed with a 10% excess of the appropriate anilinovinyl compd.. heated to 70, degree., mixed with 10 ml. Ac<sub>2</sub>O, and allowed to react 5 min. to give 45% V (X = 4-chloro-1,2-phenylene), decomp. >300, degree.. Similarly prep'd. were V (X = 4,4'-biphenylene), m. >380, degree.. and V (X = 1,2-naphthyl), m. >300, degree.. and V (X = 2-methyl-5,6-benzothiazoline), m. >300, degree.. Spectral data is tabulated.

IT 19375-14-5P 19375-15-6P 19543-68-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

RN 19375-14-5 CAPLUS

L7 ANSWER 63 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

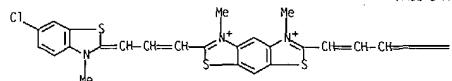
CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(6-chloro-3-methyl-2(3H)-benzothiazolylidene)-1-propenyl]-3,5-dimethyl-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

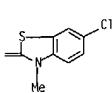
CRN 47834-68-4

CMF C32 H26 Cl2 N4 S4

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PAGE 1-B



CM 2

CRN 21228-90-0

CMF C H3 O4 S

Me-O-SO<sub>3</sub><sup>-</sup>

RN 19375-15-6 CAPLUS

CN Benzo[1,2-d:5,4-d']bisthiazolium, 2,6-bis[3-(3,6-dimethylbenzo[1,2-d:5,4-d']bisthiazol-2(3H)-ylidene)propenyl]-3,5-dimethyl-, bis(methyl sulfate) (8CI) (CA INDEX NAME)

CM 1

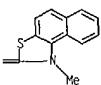
CRN 47870-73-5

CMF C36 H30 N6 S6

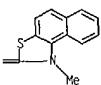
L7 ANSWER 63 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

L7 ANSWER 63 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

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CM 2

CRN 21228-90-0

CMF C H3 O4 S

Me-O-SO<sub>3</sub><sup>-</sup>

CM 2

CRN 21228-90-0

CMF C H3 O4 S

Me-O-SO<sub>3</sub><sup>-</sup>

RN 19543-68-1 CAPLUS

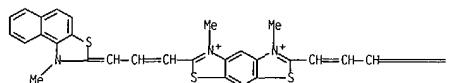
CN Benzo[1,2-d:5,4-d']bisthiazolium, 3,5-dimethyl-2,6-bis[3-(1-methylnaphtho[1,2-d]thiazol-2(1H)-ylidene)-1-propenyl]-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 47869-69-2

CMF C40 H32 N4 S4

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L7 ANSWER 64 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
 ACCESSION NUMBER: 1968-420394 CAPLUS  
 DOCUMENT NUMBER: 69-20394  
 TITLE: Cyanine dyes with two conjugated chromophores. VI  
 AUTHOR(S): Fridman, S. G.; Kipiranov, A. I.  
 CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
 SOURCE: Zhurnal Organicheskoi Khimii (1968), 4(4), 696-703  
 CODEN: ZORKAE; ISSN: 0514-7492  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GRAPHIC IMAGE: For diagram(s), see printed CA Issue.  
 ABSTRACT:  
 The following cyanine dyes were prep'd. (dye and  $\lambda_{max}$ , in m.m., given):  
 Q:CHCH:CHXX' Me, 556; Q:CHCH:CH'X'Me, 464; R:CHCH:CHX' Me, 562; R:CHCH:CH'X'Me,  
 500; R:CHCH:CH'Y'Me, 564; R:CHCH:CH'Y'Me, 532; Q:CHCH:CHZH, 516; R:CHCH:CHZH,  
 533; Q:CHCH:CHXX'CH:Q, 570 and 476; R:CHCH:CHXX'CH:CHCH:R, 566 and 496;  
 R:CHCH:CH'Y'CH:CHCH:R, 590 and 500; Q:CHCH:CHCH:CHCH:Q 560 and 458;  
 R:CHCH:CHZH:CHCH:R, 600 and 470.

IT 19593-68-1P 19593-69-2P 19669-83-1P

19669-84-2P 23416-27-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

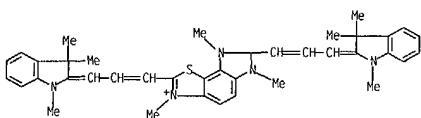
RN 19593-68-1 CAPLUS

CH 6H-Imidazo[4,5-g]benzothiazolium, 3,6,8-trimethyl-2,7-bis[3-(1,3,3-trimethyl-2-indolinylidene)propenyl]-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47857-60-3

CMF C39 H43 N5 S



\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

CM 2

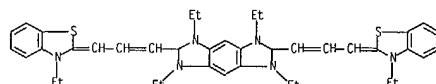
CRN 14797-73-0

L7 ANSWER 64 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)  
 CMF C1 O4



RN 19593-69-2 CAPLUS

CH 6H-Imidazo[4,5-g]benzothiazolium, 1,3,5,7-tetraethyl-2,6-bis[3-(3-ethyl-2-benzothiazolinylidene)propenyl]-3,5-dihydro-, diiodide (8CI) (CA INDEX NAME)



●2 1-

\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

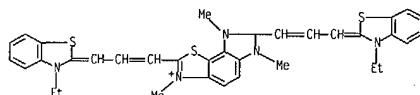
RN 19669-83-1 CAPLUS

CH 6H-Imidazo[4,5-g]benzothiazolium, 2,7-bis[3-(3-ethyl-2-benzothiazolinylidene)propenyl]-3,6,8-trimethyl-, diperchlorate (8CI) (CA INDEX NAME)

CM 1

CRN 47843-60-7

CMF C35 H35 N5 S3



\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

L7 ANSWER 64 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 2

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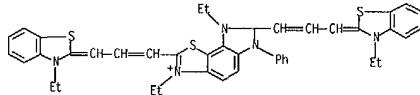
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L7 ANSWER 64 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN (Continued)

CM 1

CRN 50569-84-1

CMF C42 H41 N5 S3

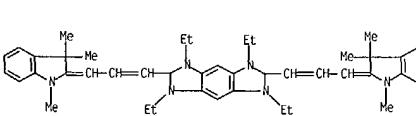


\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

CM 2

CRN 14797-73-0

CMF C1 O4



\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

CM 2

CRN 14797-73-0

CMF C1 O4



RN 21416-27-3 CAPLUS  
 CH 6H-Imidazo[4,5-g]benzothiazolium, 3,8-diethyl-2,7-bis[3-(3-ethyl-2-benzothiazolinylidene)propenyl]-6-phenyl-, diperchlorate (8CI) (CA INDEX NAME)

L7 ANSWER 65 OF 65 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1968:68919 CAPLUS

DOCUMENT NUMBER: 68:68919  
TITLE: Synthesis and structure of the isomeric  
benzobisthiazoles  
AUTHOR(S): Kiprianov, A. I.; Mikhailyko, F. A.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Khimiya Geterotsiklicheskikh Soedinenii (1967), (2),  
270-6  
CODEN: KGSSAQ; ISSN: 0132-6244  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:  
It was found, that the structure I (R = Me) for dimethylbenzobisthiazole prep'd. according to Greene and Perkin (1903) and Kiprianov, et al. (1956), is incorrect and isomeric angular structure II (R = Me) was proposed. II (R = Me), m. 101.degree. (benzene), hydrate m. 121.degree. (EtOH), dimethosulfate (obtained in 7% yield by 20 min. heating of II (R = Me) with Me2SO4), was alternatively prep'd. in 75% yield by stepwise addn. of 0.8g. 2-methyl-6-amino-7-isothiocyanobenzothiazole to a soln. of 2 g. Na2S in 5 cc. H2O at 60-70.degree., filtering, adding 5 cc. Ac2O, refluxing 3 hrs., neutralization with NH3, washing with H2O, and drying at 110.degree. in vacuo. For comparison I (R = Me), m. 227.degree. (benzene), dimethosulfate m. 270.degree. (aq. EtOH) (decompn.), was prep'd. in 5.8% yield by diazotization of 12 g. 2-methyl-5-amino-6-nitrobenzothiazole (III), in 5 cc. aq. HCl (1:1) with 3.5 g. NaNO3 in 10 cc. H2O at -3 to -5.degree., simultaneous addn. of diazotized III and 9 cc. H2O. 40% aq. NaOH to Na2S2 (from 15 g. Na2S and 2.1 g. S) in 50 cc. H2O. 3 hrs. keeping at 0.degree., heating to 70.degree., filtering, washing, and drying of crude disulfide IV (11.4 g.); IV was reduced by refluxing with 14 g. powd. Zn and 19 cc. concd. HCl in 57 cc. AcOH 0.5 hr. Then 19 cc. Ac2O and 40 cc. benzene were added, the mixt. refluxed 3 hrs., the benzene removed, the residue basified with NaOH, the ppt. centrifuged, dried, and extd. with CHCl3. the CHCl3 ext. distd., the residue treated with 50 cc. 10% HCl, the soln. neutralized with NH3 and I (R = Me) purified by chromatog. of its CHCl3 soln. on alumina. The dipole moment of I (R = Me) and II (R = Me) was 0 and 2.7 D, resp. Ir and uv spectra of both isomers were recorded. Only ir spectrum of II (R = Me), exhibits the peak at 813 cm.-1 typical for ortho-substituted benzene ring. For diamino deriv. of benzobisthiazoles prep'd. according to Stephens and Wiberly (1950) and Stephens and Alicot (CA 55: 17023), angular structure II (R = NHMe) was also proposed. The reaction mechanism of the latter synthesis was given. The structure II (R = NHMe) was confirmed by 15 min. fusion of 10 g. diamino deriv. with 24 g. NaOH, 24 g. KOH, and 12 g. Na2S at 200.degree. and subsequent acetylation of the decompn. product with 200 cc. Ac2O during 20 min. to 2-methyl-6-acetylamino-7-acetylthiobenzothiazole, m. 189 degree. (benzene), which was converted with 30 cc. refluxing 50% H2SO4 to II (R = Me) (total yield 39%). The bis(methylthio) deriv. of benzobisthiazole was prep'd. in 40% yield according to Du Pont Film

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Mfg. Corp. [U.S. 2,202,990 (1937)] and from the ir spectrum (a peak at 810 cm.-1) the structure was revised from I (R = SH) to II (R = SME). II (R = SME) gave by 5 min. refluxing of the crude II (R = SME) dimethosulfate (obtained by 8 hrs. heating of 0.29 g. II (R = SME) with 1 g. (MeO)2SO2 at 160.degree.) with 0.8 g. 2-methylbenzothiazole methyl methosulfate in 20 cc. pyridine 62% bicyanine (V). Alternatively, V was obtained by 10 min. heating of 0.24 g. II (R = SME) dimethosulfate with 0.45 g. 2-(methylthio)benzothiazole methyl methosulfate (VI) in 5 cc. Ac2O in the presence of 5 drops of Et3N. Bicyanine (VII), m. above 360.degree., was prep'd. in 49% yield by 2 min. refluxing of 0.047 g. I (R = Me) dimethosulfate with 0.12 g. VI in 2 cc. pyridine. Uv spectra of V and VII in 21 EtOH-HCO2H were recorded.

IT 18763-52-5P 41062-87-7P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)

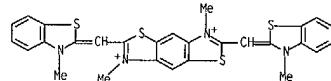
RN 18763-52-5 CAPLUS

CN Benzo[1,2-d:4,5-d']bis[thiazolium, 3,7-dimethyl-2,6-bis[(3-methyl-2(3H)-benzothiazolylidene)methyl]-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

CM 1

CRN 47777-07-1

CMF C28 H24 N4 S4



CM 2

CRN 21228-90-0

CMF C H3 O4 S

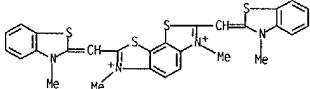
Me-O-SO3-

RN 41062-87-7 CAPLUS

CN Benzo[1,2-d:4,5-d']bis[thiazolium, 3,6-dimethyl-2,7-bis[(3-methyl-2(3H)-benzothiazolylidene)methyl]-, bis(methyl sulfate) (9CI) (CA INDEX NAME)

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CM 1

CRN 48232-80-0  
CMF C28 H24 N4 S4



CM 2

CRN 21228-90-0  
CMF C H3 O4 S

Me-O-SO3-

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COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	295.64	592.97
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
CA SUBSCRIBER PRICE	ENTRY	SESSION
	-42.32	-42.32

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